YEIDA Phase-II

(Notified Area of District Agra, Hathras & Mathura)

DRAFT MASTER PLAN

Agra Urban Centre -2041

Yamuna Expressway Industrial Development Authority

YEIDA

FUTURE IS HERE

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ABBREVIATIONS

AB Cable	Aerial Bunched Cable
ADA	Agra Development Authority
AUC	Agra Urban Centre
AKIC	Amritsar Kolkata Industrial Corridor
AT&C Losses	Aggregate Technical & Commercial Losses
BRTS	Bus Rapid Transit System
CBD	Central Business District
CGWB	Central Ground Water Board
CPCB	Central Pollution Control Board
CWC	Central Water Commission
DMIC	Delhi Mumbai Industrial Corridor
DTR	Distribution Transformer
EDFC	Eastern Dedicated Freight Corridor
ESS	Electrical Sub Station
FAR	Floor Area Ratio
GIS	Geographical Information System
GIS (Power)	Gas-Insulated Switchgear
HSR	High Speed Rail
HT	High Tension Line
HVDS	High Voltage Distribution System
LPCD	Litres Per Capita Per Day
MDR	Major District Road
MRTS	Mass Rapid Transit System
MSW	Municipal Solid Waste
NCR	National Capital Region
NH	National Highway
NRSC	National Remote Sensing Centre
ODR	Other District Road
ORC	Orbital Rail Corridor
PAL	Planning Activity Level
PRT	Personalised Rapid Transit
ROW	Right of Way
RCUP	River Centric Urban Planning (Guidelines)
RMU	Ring Main Unit
RRTS	Regional Rapid Transit System
SCADA	Supervisory Control and Data Acquisition
SDMA	State Disaster Management Authority
SH	State Highway
ST	Scheduled Tribe
STP	Sewage Treatment Plant
TOD	Transit Oriented Development
TTZ	Taj Trapezium Zone

UPPCL	Uttar Pradesh Power Corporation Limited
UPPTCL	Uttar Pradesh Power Transmission Corporation Limited
URDPFI	Urban and Regional Plans Development Formulation and Implementation
WPR	Work Participation Rate
WTP	Water Treatment Plant
Y.E.	Yamuna Expressway
YEIDA	Yamuna Expressway Industrial Development Authority

EXECUTIVE SUMMARY

The Yamuna Expressway Industrial Development Authority (YEIDA), established in April 2001 under the Uttar Pradesh Industrial Area Development Act, manages the Yamuna Expressway Project to drive regional development. The Uttar Pradesh government aims to enhance NCR connectivity and promote tourism in the region through the Yamuna Expressway, a 100-meter-wide, 165-km, six-lane access-controlled road, expandable to eight lanes, between Greater Noida and Agra, reducing travel time between the two cities to 100 minutes. YEIDA, as an apex authority, is responsible for guiding and regulating the region's development through a systematic and planned approach.

YEIDA has identified four Urban Centres in it's notified area that is Tappal Bajna Urban Centre (in Aligarh and Mathura District), Raya Urban Centre (in Mathura District), Hathras Urban Centre (in Hathras District) and Agra Urban Centre (in Agra, Mathura and Hathras District).

Overview:

The Agra Urban Centre (AUC) is a significant greenfield development project being planned by the Yamuna Expressway Industrial Development Authority (YEIDA) along the Yamuna Expressway. The project aims to create a new, well-planned city that serves as a major industrial and tourism hub, leveraging Agra's global reputation.

YEIDA aims to prepare **Agra Urban Centre Master Plan, 2041**, with the following objectives:

1 To leverage the industrial development potential of Agra Urban Centre.
2 To enhance heritage and tourism potential by developing world-class infrastructure and connectivity
3 To formulate a comprehensive land use plan ensuring orderly and sustainable urban development.
4 To attract domestic and global investments through provision of high-quality physical and social infrastructure.
5 To leverage emerging opportunities from regional, national, and global economic shifts and upcoming large-scale infrastructure projects in and around the region.
6 To ensure integrated rural–urban development, creating better economic opportunities for rural communities while enhancing quality of life through improved infrastructure and services.

Major economic drivers envisaged for Agra Urban Centre are **Industry** and **Tourism**; with the **vision:**

> *"To establish Agra Urban Centre as a world-class hub for green and white industries, IT and ITeS, logistics and heritage tourism, supported by state-of-the-art infrastructure and seamless connectivity. The vision is to foster an enabling environment that attracts investment, innovation and entrepreneurship, while ensuring the preservation of its cultural heritage and sustainable development."*

The site for the Agra Urban Centre is a vast area of approximately 144.80 Sq.Km., which is to be developed on land from 44 villages located in Agra (37), Mathura (3), and Hathras (4) districts.

This strategic location is intended to provide excellent connectivity via the Yamuna Expressway and the Eastern Dedicated Freight Corridor (EDFC) and is expected to benefit from the proximity to major projects like the Noida International Airport in Jewar. The development is proposed on both sides of the Yamuna Expressway, focussing on Non-Polluting industries, tourism, IT industries, transport and sustainable development.

Demography: The delineated AUC is predominantly rural in character, with a population of 158,000 as per the 2011 Census. The literacy rate stands at 61%, and the workforce participation rate is 48%, both of which indicate significant scope for improvement when compared to other urban centres in Uttar Pradesh.

Economy: While the AUC is currently characterized by predominantly primary activities such as agriculture and dairy farming, the broader regional economy is more diversified. Nearby districts like Agra, Mathura, Gautam Buddha Nagar, and Aligarh have emerged as significant industrial hubs, contributing to a robust and expanding economic base. This economic dynamism is expected to have a strong influence on the AUC, positioning it to benefit from the region's growing industrial and service sectors.

Population Projections

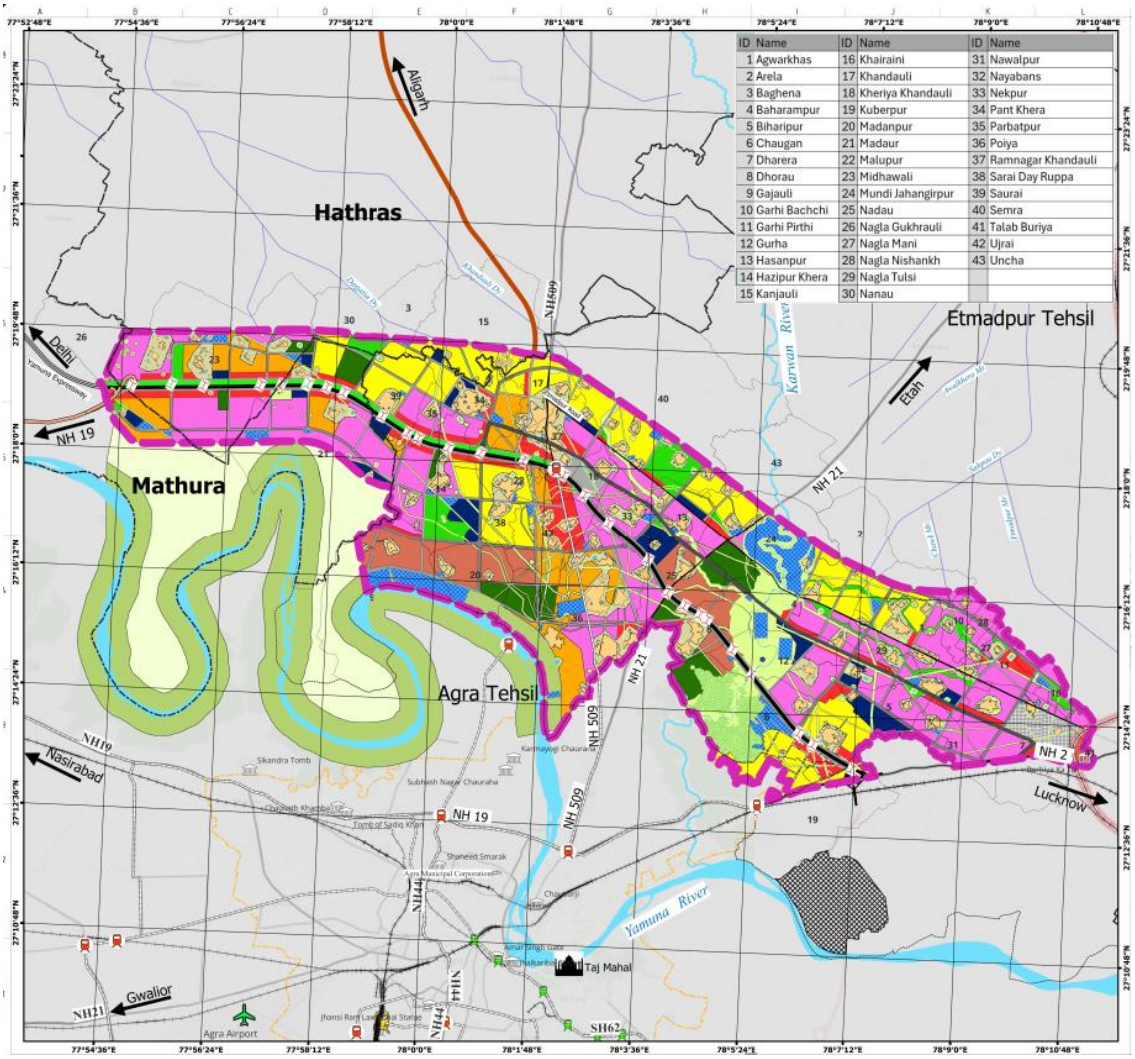
- The proposed Agra Urban Centre is expected to catalyse economic growth by hosting a diverse range of industries and services. The total direct employment generated in Agra Urban Centre is estimated to be about 3.1 lakhs from the various economic activities proposed. About 6.95 lakh indirect jobs are expected to be generated in the Agra Urban centre. Total employment generation is estimated to be about 10 lakhs.
- The projected population of AUC for the year 2041 is 16.5 lakhs. The average daily floating population by the year 2041 is estimated to be 4,65,000.

Description	Estimate
Induced Population Accommodated in Agra Urban centre	13.8 to 14.9 lakhs ~ 14 lakhs
Projected population in village pockets	2.87
Total population in the Agra Urban Centre	Approximately 16.5 lakhs

Proposed Land Use

The proposed land use allocation in the Master Plan of the Agra Urban Centre, designed to accommodate an estimated population of 16.50 lakhs (including existing villages within the urban centre), adheres to a hierarchical structure. This structure ensures efficient distribution of sectors and facilities across the total developable area, in accordance with established norms and standards.

The plan draws follows the Urban and Regional Development Plans Formulation Implementation and (URDPFI) guidelines, the Yamuna Expressway Industrial Development Authority (YEIDA) Building Regulations, and draws references from successful master plans of established industrial areas such as NOIDA, Greater NOIDA, YEIDA ph-1 and other Urban Centres plans of YEIDA, ensuring a well-planned and sustainable urban development.



ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
2	Arela	17	Khandauli	32	Nayabans
3	Baghena	18	Kheriya Khandauli	33	Nekpur
4	Baharampur	19	Kuberpur	34	Pant Khera
5	Biharipur	20	Madanpur	35	Parbatpur
6	Chaugan	21	Madaur	36	Poiya
7	Dharera	22	Malupur	37	Ramnagar Khandauli
8	Dhorau	23	Midhawali	38	Sarai Day Ruppa
9	Gajauli	24	Mundi Jahangirpur	39	Saurai
10	Garhi Bachchi	25	Nadau	40	Semra
11	Garhi Pirthi	26	Nagla Gukhrauli	41	Talab Buriya
12	Gurha	27	Nagla Mani	42	Ujrai
13	Hasanpur	28	Nagla Nishankh	43	Uncha
14	Hazipur Khera	29	Nagla Tulsi		
15	Kanjauli	30	Nanau		

LEGEND:

- District Boundary
- Tehsil Boundary
- Project Boundary
- Village Boundary
- Railway
- Proposed NH to Aligarh
- EDFC
- IMC
- Taj Mahal
- Land For Development (LFD)
- Yamuna River
- Road Connecting NH19 & YE
- River Front Development
- Agricultural land
- Metro Stations
- Operational Metro Station
- Proposed Metro Station
- Expressway
- National highway
- State Highway
- Other District Road
- Historical Monuments
- Metro Line
- Agra Municipal Corporation
- Proposed Underpass
- Existing Underpass
- Commercial
- Green, Forest
- Green, Green Belt
- Green, Organized Green
- Green, Recreational Green
- Industrial, Multiple Use Industry
- Logistic, Mmlh
- Mixed Use
- PSP, Institution
- PSP, Utility
- Residential, Abadi Extension
- Residential, Existing Abadi
- Residential, Proposed Residential
- Tourism
- Transportation, Existing Road
- Transportation, MMTH
- Transportation, Road 100M
- Transportation, Road 18M
- Transportation, Road 45M
- Transportation, Road 60M
- Transportation, Road 80M
- Transportation, RRTS Corridor
- Waterbody

Total Area of Interest= 14480.61 Ha			
Land Use Category	Land Use Sub Category	Area (Ha.)	Percentage
Residential	Existing Abadi	771.29	5.33
	Abadi Extension	878.21	6.06
	Proposed Residential	1878.14	12.97
		3527.65	24.36
Commercial		648.24	4.48
Industrial		3025.21	20.89
Mixed Use		812.62	5.61
Tourism		680.72	4.70
Public- Semi Public	Instituion	430.60	2.97
	Utility	603.84	4.17
		1034.44	7.14
Green	Organized Green	420.14	2.90
	Recreational Green	460.08	3.18
	Green Belt	1138.94	7.87
	Forest	306.47	2.12
		2325.63	16.06
Transportation	Existing Road	387.65	2.68
	Road 18M	229.60	1.59
	Road 45M	115.60	0.80
	Road 60M	733.31	5.06
	Road 80M	353.96	2.44
	Road 100M	198.15	1.37
	RRTS Corridor	116.82	0.81
	MMTH	54.13	0.37
		2189.22	15.12
Logistic	MMLH	158.84	1.10
Waterbody		78.02	0.54

Figure 0-1: Proposed Land Use Plan of Agra Urban Centre 2041, Source: Consultant

Key Proposals of Agra Urban Centre Draft Masterplan 2041

Agra Urban Centre is to be developed in three phases and the proposals have been carefully distributed across the three phases for efficiency and viability.

A] Physical Infrastructure

The physical infrastructure strategy for Agra Urban Centre focuses on ensuring sustainable, resilient, and future-ready utilities across water supply, sewerage, stormwater management, solid waste, and power.

For **water supply**, the projected demand is 375 MLD, distributed equally across three phases of 125 MLD each. Adequate resources are available through the Yamuna River, the Lower Ganga Canal, and rainwater harvesting reservoirs. Two large reservoirs—one of 11,750 MLD capacity at the Yamuna buffer and another of 22,500 MLD capacity at the Karwan River buffer—are proposed to store and supply water to zonal Water Treatment Plants (WTPs). Borewells will be reserved solely for groundwater recharge. The distribution system will rely on overhead tanks, each serving a two-kilometre radius, along with underground reservoirs to ensure efficient delivery.

Stormwater and drainage management will build on the natural slope of the terrain, which directs runoff towards the Yamuna and Karwan rivers. Channel drains and rainwater harvesting pits along major roads will help manage excess runoff, prevent flooding, and support groundwater recharge. The two large rainwater reservoirs mentioned above will be integrated into this system, enabling both flood control and water storage for reuse.

The **sewerage system** will cover the entire city through a comprehensive network supported by seven Sewage Treatment Plants (STPs) across the three phases. The estimated sewage generation is about 110–115 MLD per phase, totalling nearly 335 MLD. Treated wastewater will adhere to CPCB norms and will be reused for irrigation, landscaping, firefighting, and industrial applications. Approximately 35 MLD of recycled water has been earmarked specifically for green and industrial uses, promoting water efficiency and sustainability.

Solid waste management in Agra Urban Centre is projected to handle 907 tonnes per day, of which nearly 70% is biodegradable. The system will be anchored in waste segregation at source, door-to-door collection, and the use of GPS-enabled vehicles for efficiency. Treatment facilities will combine composting, material recovery, energy recovery through refuse-derived fuel and waste-to-energy processes, and sanitary landfilling for inert waste. Two Waste Management Centres—one serving industrial areas and the other residential zones—will include Material Recovery Facilities (MRFs) to streamline processing. Additionally, construction and demolition waste, estimated at around 300 tonnes during the construction phase, will be largely reused to minimize environmental impact.

The **power supply** strategy is centred on future demand forecasting and robust distribution systems. It proposes a High Voltage Distribution System (HVDS) with underground cabling, smart metering, and SCADA integration, Demand-side management, reduction of AT&C losses, and energy efficiency measures form the core of operational improvements. Renewable energy integration plays a major role, with rooftop solar systems, decentralized hybrid solar-powered street lighting, and the development of large-scale solar park in the river buffer, which has the potential to generate around 256 MW electricity. The strategy is phased into short-, mid-, and long-term targets, progressively aiming to achieve up to 90% rooftop solar adoption for industrial and commercial buildings while moving towards a fully smart grid-enabled system.

All these infrastructure systems are underpinned by the principles of sustainability and resilience. They emphasize circularity, efficiency, and adaptability to climate risks through the reuse of treated water, renewable energy-based power supply, zero-waste targets, groundwater recharge, and ICT-based monitoring for optimized utility management.

B] Industry and Tourism

Based on the various studies and analysis in the sectors of infrastructure, connectivity and economy, some sectors have shown promising potential in Agra Urban Centre. These include Manufacturing (industries in metal fabrication, metal casting, motorcycle part, general purpose machinery), Food processing, leather and handicrafts (excluding tanning), apparel, logistics and warehousing, IT and ITeS and hospitality and recreational activities.

Luxury and Mid-Range Hotels, Resorts and Eco-Stays, MICE Tourism (Meetings, Incentives, Conferences, and Exhibitions) are key hospitality sectors that hold potential in Agra Urban Centre.

The Agra Urban Centre lies in the Taj Trapezium Zone (TTZ). Therefore non-polluting industries have been proposed, compliant with TTZ Guidelines.

Product Mix

The sectors having economic potential in Agra Urban Centre have been established from study of regional economy, existing economic base, permissible activities in TTZ and data of other established urban centres in the region. The Economic zone is envisioned to house two categories of economic activities

- **Industries:** Manufacturing, Leather & Handicrafts, Food processing, Apparel and Sportswear, Sports Goods, IT & ITES and Warehousing & storage.
- **Tourism:** Theme Parks & related activities, Adventure and amusement park, Hotels & Resorts, Convention & Exhibition Centre related activities (MICE), Wellness tourism activities and Eco tourism and river front recreational/ adventure activities.

The urban centre comes under the Taj Trapezium Zone which imposes high restriction on industrial development. Therefore industries with air pollution score within 20 have been proposed in Agra Urban Centre. Parallelly, tourism and culture has emerged as a major potential in the region. Hence tourism economy has been proposed as a significant share of the economic zone.

C) Transportation and Logistics

State of the art transportation has been considered as the backbone for the successful development and functioning of the urban centre. A mix of several modes of transportation have been planned for serving diverse purposes and travel needs.

Roads being the major circulation network, have been hierarchically planned with widths of 100m, 80m, 60m and 45m. These roads also serve the purpose of marking segregation between the major sectors of Agra Urban centre.

Master plan proposes intercity connectivity with Agra city through extension of Agra Metro, with nearby cities through inter-city bus service. Considering the high trip volume between the Noida International Airport and the Agra Urban Centre, an alternative high-speed rail-based transport mode is recommended.

LRT has been proposed for intra-city public transportation in AUC and last mile connectivity has been proposed through PRT (for tourism zones and high end sectors) and e-rickshaws (lane segregated).

A Multi Modal Transport Hub is proposed in the northern part of the Yamuna Expressway. The major existing regional access to the MMTH from the Yamuna Expressway is through NH-509. A 100 m wide road is proposed connecting the Yamuna Expressway and the NH-19 which would be the arterial road connecting the MMTH to the region. Additionally, a Multi Modal Logistic Hub in the Agra Urban Centre, near the existing EDFC Corridor, closest Station being New Tundla Junction, is proposed to become the regional hub for e-commerce warehousing and distribution as well as warehousing hub for agro produce in the region.

D] Environment and Disaster Management

The **environmental and disaster management** framework complements this infrastructure strategy by balancing ecological preservation with climate resilience. It integrates preserving natural drainage, flood management, reservoir development, canal buffers, wetlands, and green infrastructure into the city's growth model. Natural stormwater flows will be directed towards the Yamuna and Karwan Rivers through six identified pouring points, with rainwater harvesting tanks and recharge structures ensuring water reuse for both potable and non-potable purposes. Bioswales along internal roads and green belts beside streams will aid infiltration, reduce flood risks, and provide cooling benefits at the local level.

Canal and waterbody buffers will be developed in line with CPCB guidelines, with 20 metres reserved for major canals, 10 metres for minor canals, 50 metres around lakes larger than 10 hectares, 30 metres around smaller lakes and ponds, 12 metres along major streams, and 2 metres along nallahs or storm drains. Reservoir development is another key intervention, with two major reservoirs proposed near the Yamuna (11,750 MLD) and Karwan (22,500 MLD) rivers to capture rainwater. These reservoirs will not only support water conservation but also strengthen flood control and drinking water security, in accordance with URDPFI and the National Water Policy (2012). Flood protection and ground water recharge measures include strict floodplain zoning, embankments along rivers, allocating parks and playgrounds to frequently flooded zones, conservation of Natural depressions and ponds and green buffers along streams and ravines Plantation strategies will prioritize roadside green belts, bioswales, and the use of climate-suitable species.

The **disaster management** plan focuses particularly on flood risks. The action plan consists of four components: channel improvement through the upgrading of the Yamuna (Stream 6), Karwan (Stream 5), and tributaries (Stream 4); controlled diversion of floodwaters into alternate channels or reservoirs; catchment area treatment through vegetation cover, green buffers, and conservation of water channels across multiple villages; and wetland conservation by integrating identified pouring points and ponds into water retention systems.

Implementation and phasing

The development of Agra Urban Centre (AUC) is envisioned as a long-term, phased process extending up to 2041, under the guidance of the Yamuna Expressway Industrial Development Authority. Development will be rolled out in three major phases, each spanning 5 years. The first phase will focus on part of AUC already experiencing rapid urbanization along NH 509 and NH 21 and the greenfield area along Yamuna Expressway towards West. The second phase will expand development towards the East of NH-21, encompassing the area near EDFC Corridor, while the final phase will extend to the North of the expressway. Financing will be supported through government funding, Public-Private Partnerships (PPPs), infrastructure bonds, and international finance. To ensure timely and effective execution, a dedicated Project Management Office (PMO) will oversee risk management, monitoring, and course corrections.

SECTION – 1: DATA ANALYSIS REPORT

1. INTRODUCTION

1.1. Background

Urbanization trends in India mirror the ongoing structural transformation of the economy. The combined share of industry and services in the national GDP far surpasses that of the primary sector. However, a key concern is that India's impressive growth over the past 15 years has been largely service-driven, unlike most developing economies where manufacturing plays a central role. Moreover, this growth has not translated into a commensurate increase in employment opportunities.

To address this gap, the National Manufacturing Policy aims to raise the share of manufacturing in GDP from the stagnant 15–16% (since the 1980s) to 25% within a decade, while creating 100 million jobs by 2022.

In line with this vision, the Central and State Governments have launched ambitious initiatives to boost productive capacities by developing investment regions and industrial areas. Major national programs include the Delhi–Mumbai Industrial Corridor, Bangalore–Mumbai Investment Corridor, and Chennai–Bangalore Industrial Corridor, each anchored by integrated industrial infrastructure, planned urbanization, and robust connectivity.

Following this approach, and to stimulate employment generation in manufacturing while strengthening the urban economy of Uttar Pradesh, the Government of UP has initiated the Yamuna Expressway Industrial Development Project.

1.2. The Yamuna Expressway Industrial Development Area (YEIDA)

The **Yamuna Expressway Industrial Development Area (YEIDA)** extends along the eastern bank of the Yamuna River, on both sides of Yamuna Expressway spanning six districts: Gautam Budh Nagar, Bulandshahr, Aligarh, Mathura, Agra, and Hathras. Originally conceived in 2001 by the Government of Uttar Pradesh as the "Taj Expressway," the project aimed to reduce travel time between the major tourist hubs of Delhi and Agra. The resulting 165 km, six-lane expressway has cut transit time to just 100 minutes, acting as a catalyst for large-scale industrialization and urban growth in the region..

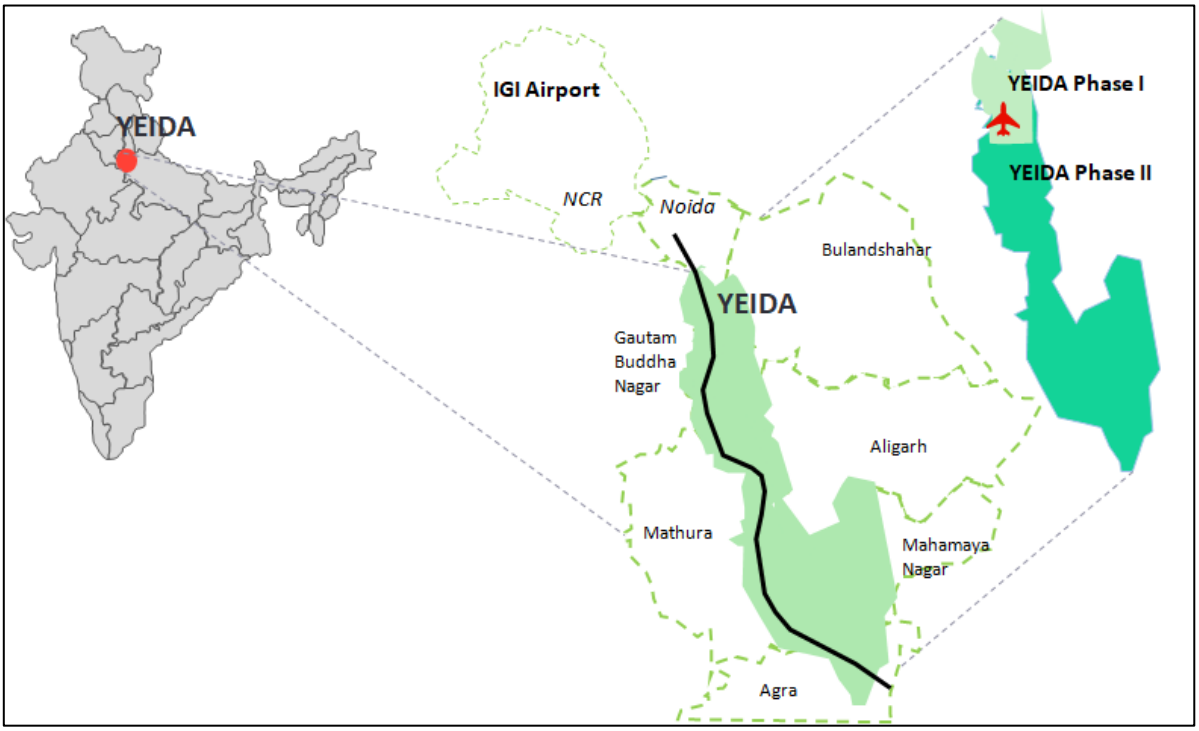
To manage this growth, the **Yamuna Expressway Industrial Development Authority (YEIDA)** was established under the *U.P. Industrial Area Development Act, 1976*. The Authority is tasked with the planned administration of 1,149 notified villages covering approximately 3,429 sq. km. To ensure systematic expansion, the region was divided into two planning stages: **Phase-I** (focusing on Gautam Budh Nagar and Bulandshahr) and **Phase-II** (covering Aligarh, Mathura, Agra, and Hathras).

Table 1-1 YEIDA Notified Planning Area

Phase-1				Phase-2				
Districts	**GB Nagar**	**Bulandshahar**	**Total**	**Aligarh**	**Mathura**	**Hathras**	**Agra**	**Total**
Tehsil	Sadar Jewar	Sikandrabad, Khurja		Khair	Sadar & Mat	Sadabad, Hathras	Sadar, Etmad pur	
Notified Villages	131	95	**226**	92	415	358	58	**923**

Source: Notifications of YEIDA

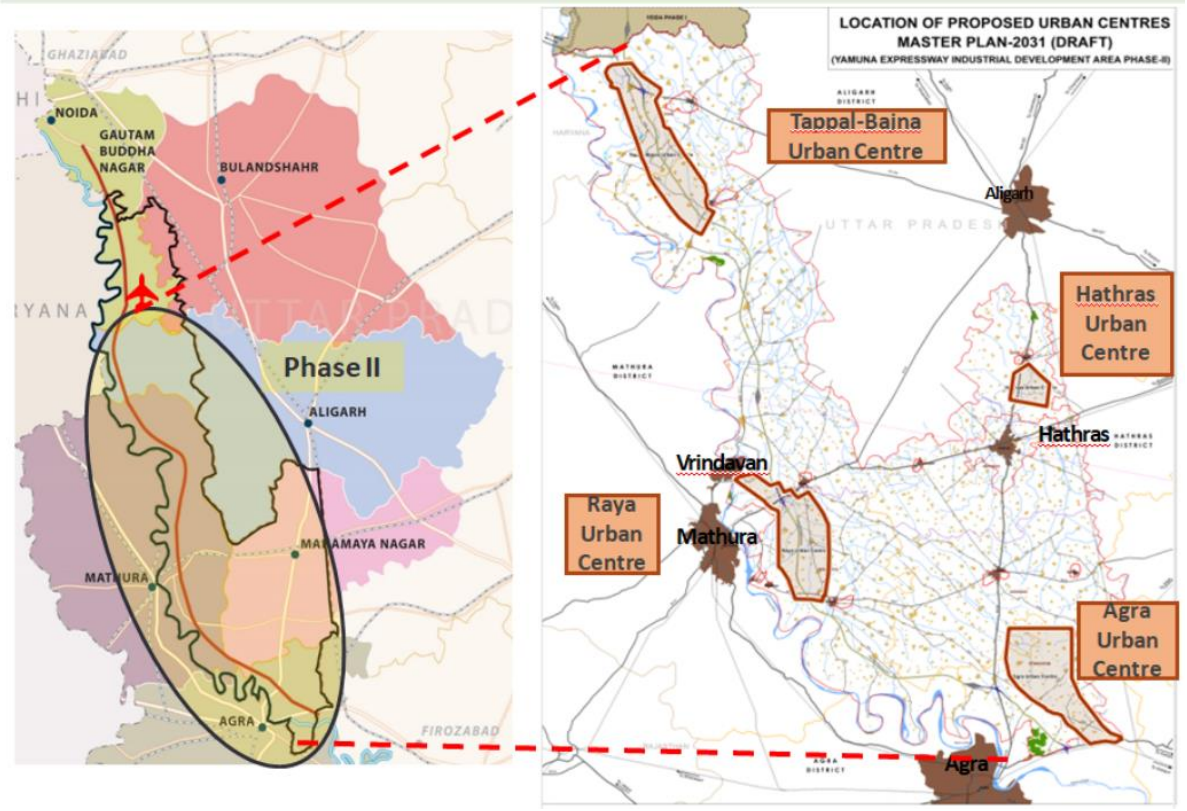
Figure 1-1: YEIDA Notified Area



Source: YEIDA Official Website

Under the approved **Master Plan 2031 for YEIDA Phase-II**, four urban centers have been identified for prioritized urbanization. This report focuses specifically on the **Agra Urban Centre**, located majorly in Agra District District and in close proximity to Agra City.

Figure 1-2: Four urban centres proposed by YEIDA in YEIDA Phase 2



Source: YEIDA, Phase-2 Master Plan-2031

1.3. Need for Agra Urban Centre Master Plan

The Government of Uttar Pradesh aims to drive economic growth by promoting industrialisation in identified regions. In this context, YEIDA has emerged as one of the most promising destinations for industrial development.

Its strategic location adjacent to the NCR, proximity to multifunctional centres, seamless connectivity through the Yamuna Expressway, availability of vast greenfield land, and the presence of existing, ongoing, and proposed national and regional infrastructure projects collectively make the area highly suitable for large-scale industrialisation. To attract investment and ensure planned, sustainable growth in line with the State's vision for industrialisation, the preparation of a Master Plan for YEIDA becomes essential.

Within YEIDA extents, the masterplan 2041 of Phase I is already notified. Similarly, out of the four identified urban centres in YEIDA Phase II, Tappal Bajna Urban Centre Masterplan 2031 and Raya Urban Centre Masterplan 2031 are already prepared. The next most potential area is Agra Urban Centre, owing to its location along Yamuna Expressway near Agra City. In order to achieve a well-planned growth in this area, whilst harnessing the economic potential of the location, preparation of a masterplan is imperative. Also, since the site is adjacent to Agra City, it is experiencing urban sprawl from Agra, which needs to be controlled. Therefore, preparation of Agra Urban Centre Masterplan on priority is of paramount importance.

1.4. Purpose of the Master Plan

The purpose of preparing a Master Plan is to establish a comprehensive development framework that guides the long-term growth of the area over a 20-year horizon. It serves as a strategic and statutory document regulating land use and development controls. The plan provides a broad land use framework along with city-level infrastructure proposals and development control regulations for different zones, which are later detailed through zonal or sector plans before implementation.

In addition, the Master Plan outlines strategies for developing essential physical and social infrastructure to support future urbanisation. While it allocates land uses for two decades, the plan requires regular monitoring and periodic updates. Hence, revisions are mandated every 5 years to reflect on-ground realities, review the pace and direction of growth, and incorporate emerging development trends and changing demand scenarios.

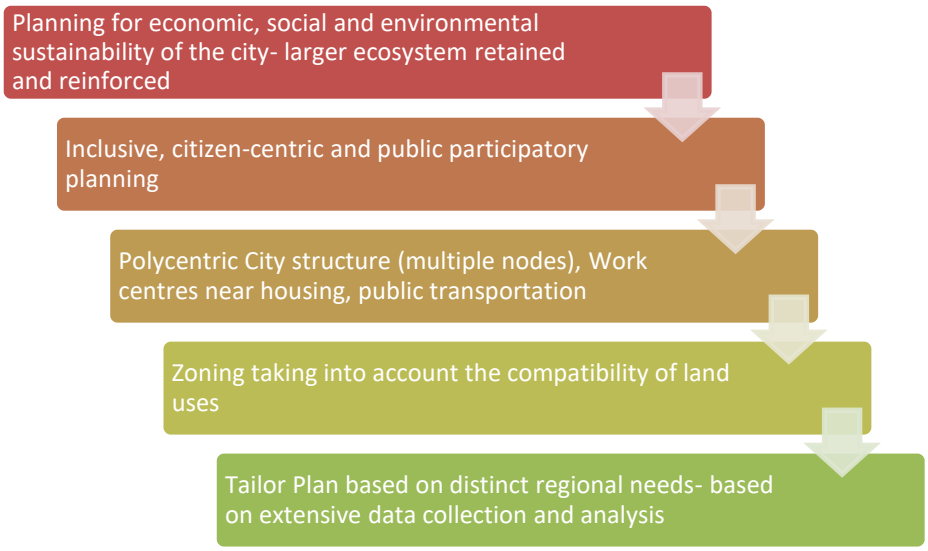
Given that economic conditions and growth patterns often shift more rapidly than anticipated, such periodic revisions ensure the Master Plan remains practical, adaptable, and responsive, making it more effective and realistic for implementation.

1.5. Approach & Methodogy Adopted for Master Plan Preparation

1.5.1. Approach

The approach towards master planning has been to prepare an inclusive, public participatory and sustainable masterplan, preserving and reinforcing the existing *abadis*, blue-green infrastructure and building on the available resources and economic potential of the region, such that the urban centre is well connected and provides easy access to public amenities and places of work thereby reducing commute. Following is the summary of the approach adopted:

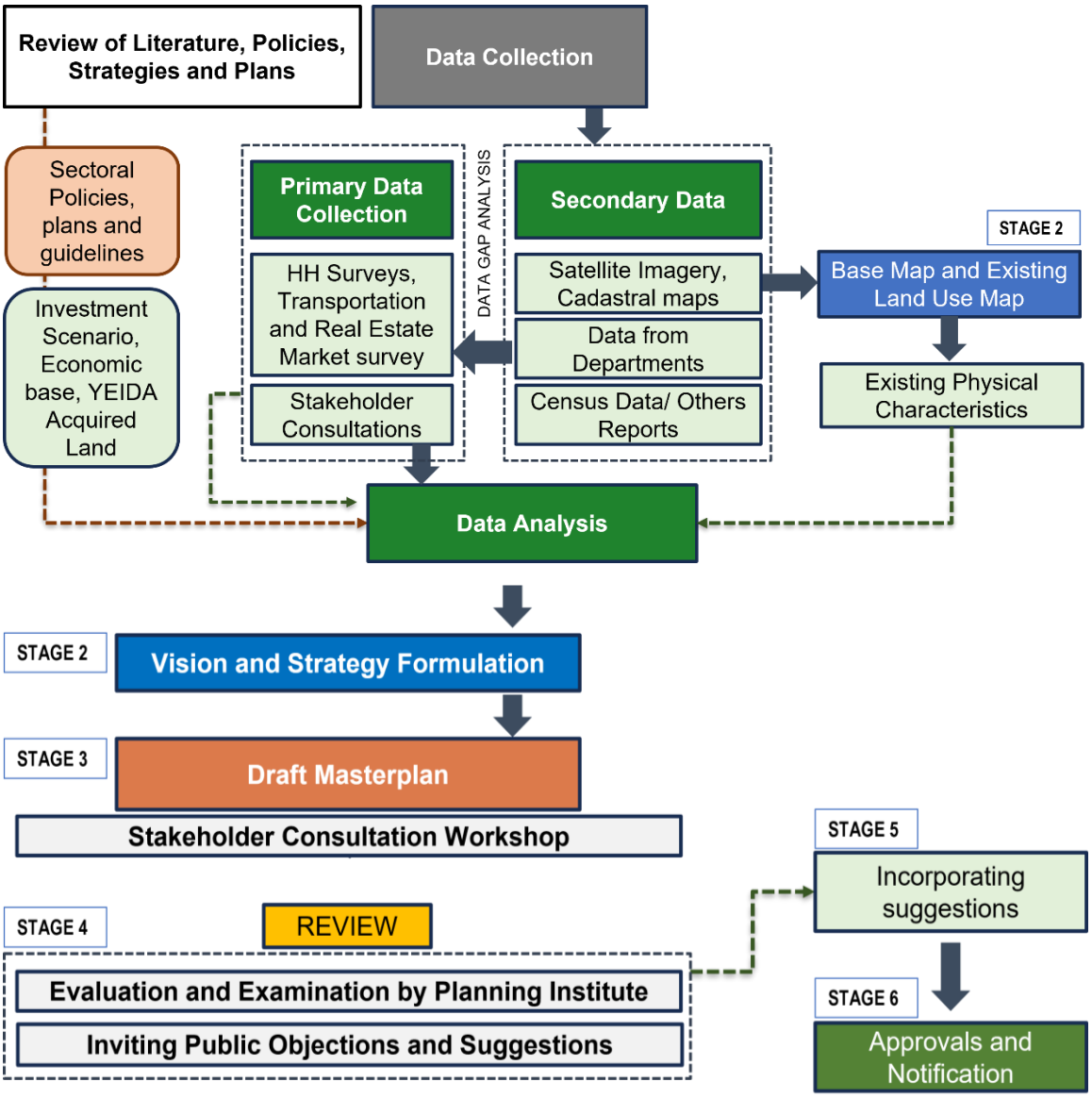
Figure 1-3: Approach towards Master planning



Source: Consultant

1.5.2. Methodology

The preparation of masterplan commenced with extensive primary and secondary data collection and analysis, study of existing documents and spatial data leading to preparation of a GIS base map and existing land use map, serving as a base to prepare the land use plan. Vision, focusing on identified economic base for the urban centre was thus formulated, followed by the formulation of product mix and population projections, based on which a land use plan has been prepared. The masterplan is to be notified after incorporating public objections and suggestions, followed by approval from the state.



- Household survey: Approx. 2% HH, i.e. 560 samples have been surveyed using a structured questionnaire through random sampling
- Base map has been prepared by consultant on ArcGIS Software based on Worldview-2 Satellite Imagery 2024, Survey of India Topo Map, Cadastral Maps of villages, Survey of India data, Agra District Census Handbook 2011 and Google Earth Pro. Existing Lans Use Map has been prepared by consultant based on Worldview-2 Satellite Imagery 2024, Bhuvan - AMRUT Agra Land use and Google Earth Pro.

1.6. Objectives of the Master Plan

Objectives of the Master Plan for Agra Urban Centre are as follows:

1 To leverage the industrial development potential of Agra Urban Centre.
2 To enhance heritage and tourism potential by developing world-class infrastructure and connectivity
3 To formulate a comprehensive land use plan ensuring orderly and sustainable urban development.
4 To attract domestic and global investments through provision of high-quality physical and social infrastructure.
5 To leverage emerging opportunities from regional, national, and global economic shifts and upcoming large-scale infrastructure projects in and around the region.
6 To ensure integrated rural–urban development, creating better economic opportunities for rural communities while enhancing quality of life through improved infrastructure and services.

1.7. Agra Urban Centre

The Agra Urban Centre holds significant advantages primarily due to its strategic location along the Yamuna Expressway. It is essential to harness the region's growth potential, improve living standards, and create a sustainable, well-planned urban environment that supports economic vitality while preserving its cultural and environmental assets. Yamuna Expressway, which is a 165-km, six-lane, access-controlled highway connects Agra to Greater Noida and the National Capital Region, drastically reducing travel time, thereby enhancing regional connectivity and accessibility.

The Expressway serves as a major transport and logistics corridor, facilitating smooth movement of goods and people, which, alongside a developed industrial land is envisaged to attract industrial parks, commercial hubs, and residential townships. Its proximity to the upcoming Noida International Airport at Jewar further boosts the area's potential as a key economic and urban development zone. The project aims to:

- **Manage Urban sprawl** through planned and sustainable urban development.
- **Boost Economic Development** by promoting industrial, commercial, and tourism activities, generating employment and enhancing economy.
- **Enhance Infrastructure and Connectivity**, leveraging proximity to major projects like the upcoming Noida International Airport, EDFC, IMC Agra and improved road networks.
- **Balanced Urban Growth with Environmental Sustainability:** The area emphasizes green zones, pollution-free industrial units and recreational spaces.
- **Promote Planned Growth** with a clear framework for land use and infrastructure to avoid unplanned expansion.
- **Tourism Induced Development:** The area is strongly driven by the immense tourism potential associated with the Taj Mahal. Tourism-induced development is expected to foster inclusive economic growth in the area.

1.7.1. Location

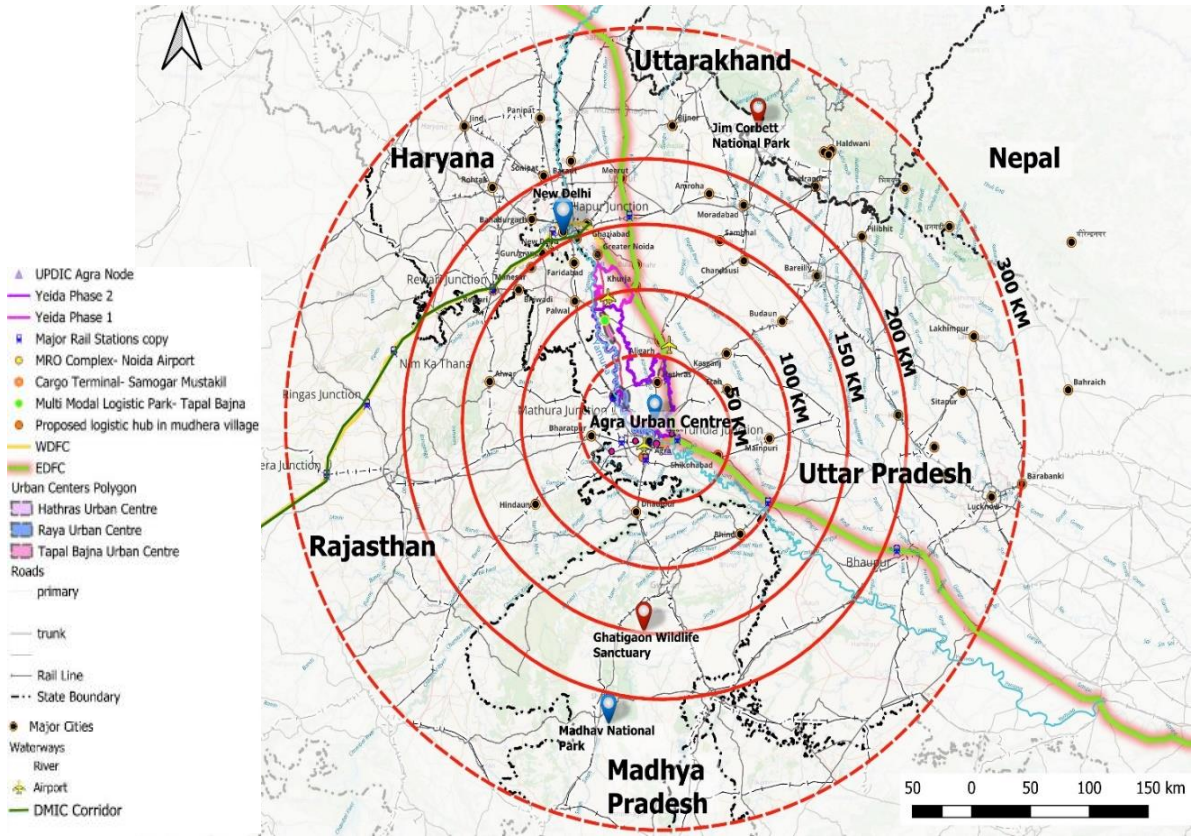
The **Agra Urban Centre** lies at the **southern terminal point of the Yamuna Expressway**, abutting Agra city. Its location provides direct, high-speed connectivity to the **National Capital Region (NCR)** and other major growth nodes:

- **Greater Noida** – ~165 km north via Yamuna Expressway
- **Noida International Airport (Jewar)** – ~120 km away, enhancing global and domestic air connectivity
- **Delhi** – ~210 km via Yamuna Expressway and Eastern Peripheral Expressway
- **Mathura** – ~55 km north along Yamuna Expressway
- **Lucknow** – ~330 km east via Agra–Lucknow Expressway

Additionally, the expressway intersects with major infrastructure networks such as the **Eastern Peripheral Expressway, Golden Quadrilateral, Western and Eastern Dedicated Freight Corridors (DFC), and the Delhi–Mumbai Industrial Corridor (DMIC)**, integrating Agra into the broader regional development framework.

This strategic positioning strengthens Agra Urban Centre's role as a **gateway to the NCR**, while boosting its potential as a hub for **industry, logistics, tourism, and urban development**.

Figure 1-4 Regional Map of Yamuna Expressway Industrial Development Area



Source: Consultant

1.7.2. Connectivity

1.7.2.1. ROAD CONNECTIVITY

Agra Urban Centre has excellent state connectivity through National and State Highways linking major regional centers. The Yamuna Expressway is the main arterial road connecting Agra Urban Centre to the National Capital Region. National Highway 21 links it to Jalesar and Bareilly, while National Highway 509 connects it to Hathras, Aligarh, and Moradabad.

National Highway 19 connects Agra Urban Centre to Etawah and Kanpur. The Inner Ring Road links the urban centre to NH 21 southwards and NH 44, enhancing southern and western highway access. The Agra-Lucknow Highway offers a high-speed expressway to Lucknow.

1.7.2.2. RAIL CONNECTIVITY

Agra Urban Centre does not havy any railway stations in its extents. However, Agra City is connected to the North Central Railway zone, through the following key stations:

- **Agra Cantonment Railway station**, the busiest hub linking major cities like Delhi, Mumbai, and Kolkata.
- **Agra Fort Railway station**, known for heritage and routes to Rajasthan, hosting luxury trains like **Palace on Wheels.**
- **Tundla Junction Railway station**, 15 km away, a major transit point for long-distance trains. Tundla also hosts the Eastern Dedicated Freight Corridor terminal known as **New Tundla Junction Railway station**, located 5 km from the junction.

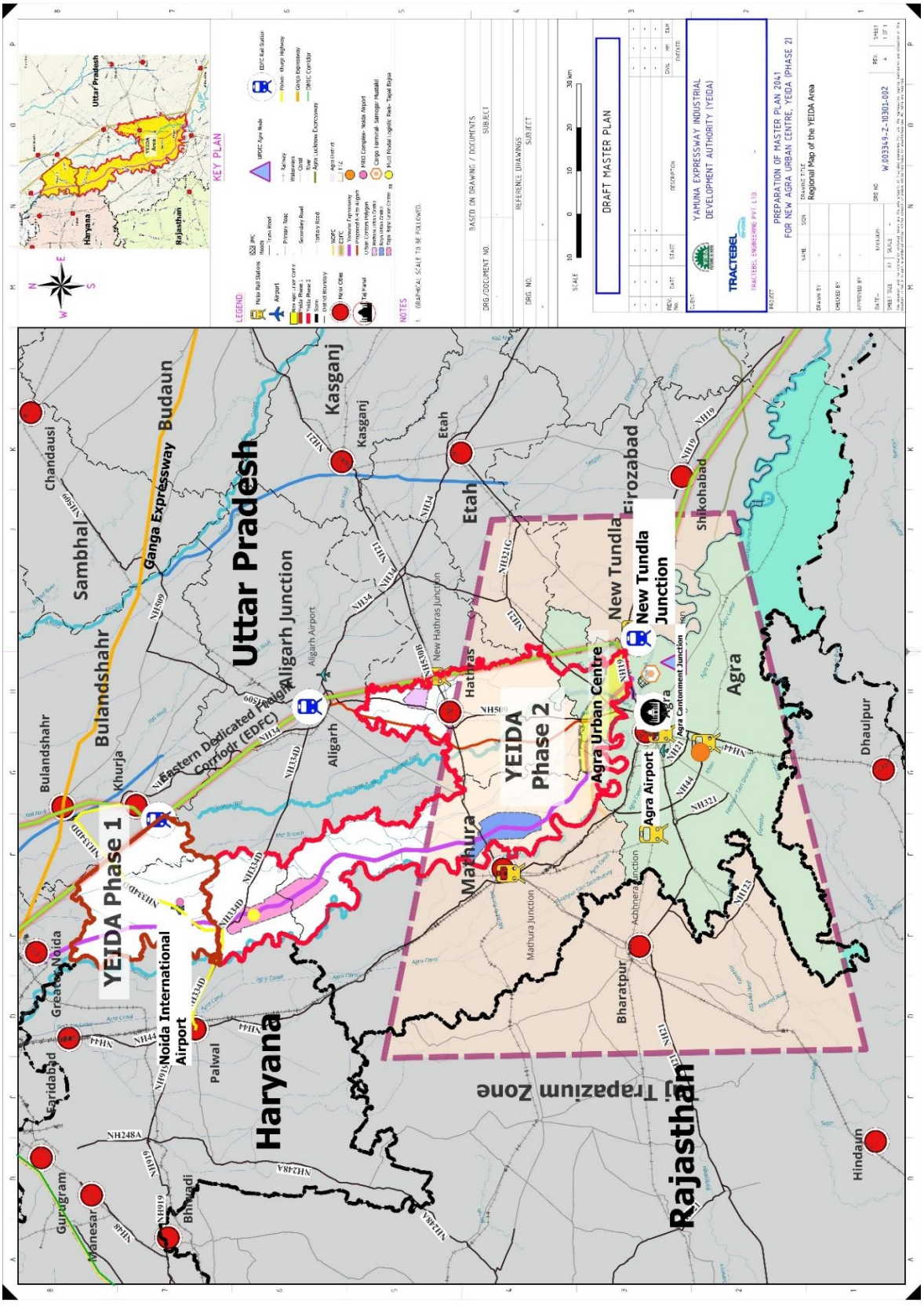
1.7.2.3. AIR CONNECTIVITY

Agra Urban Centre is connected to major Indian cities and international destinations mainly through **Pandit Deen Dayal Upadhyay Airport (Agra Airport)**, 18 km away, currently operating four domestic flights with planned international upgrades.

Indira Gandhi International Airport in New Delhi, 200 km away, remains the primary international gateway. Smaller domestic airports in Lucknow and Prayagraj also provide connectivity.

The new **Noida International Airport in Jewar, 123 km** away, shall act as a major development catalyst offering extensive international and domestic connectivity and serve as a major air cargo hub for Agra Urban Centre.

Figure 1-5 Regional Connectivity Map of Agra Urban Centre



Source: Consultant

1.7.3. Regional Physiography

Agra urban centre and the surrounding region form part of the central Indo-Gangetic Plain, one of the most extensive and level physiographic units of northern India. The terrain is predominantly **flat to gently undulating**, with elevations generally ranging between 160 and 180 meters above mean sea level. The region is built mainly of thick alluvial deposits laid down over geological time by the Yamuna and its ancestral channels. The **absence of major structural hills** and the dominance of depositional landforms reflect the plain's origin as a vast sedimentary basin.

The **Yamuna River** is the most important physiographic feature of the area, shaping the landscape. Along its course, the river has developed a well-defined floodplain, characterized by younger alluvium or khadar, which is low-lying, level, and highly fertile but prone to seasonal flooding. Away from the immediate riverbanks lie slightly elevated older alluvial terraces (Bangar), which are comparatively stable and widely used for agriculture and urban expansion. The natural **slope of the land is very gentle, generally trending from northwest to southeast**, facilitating slow surface **runoff toward the Yamuna** and influencing drainage patterns across the region.

Physiography of Agra Urban Centre has been detailed out through contour, slope and elevation under Chapter -6 on Environment.

1.7.4. Land Use/ Land Cover (LULC) of YEIDA Region

The Yamuna Expressway Industrial Development Authority (YEIDA) region is currently undergoing a massive transformation from a predominantly agrarian landscape to a world-class industrial and urban corridor. The region spans across six districts: Gautam Buddha Nagar, Bulandshahr, Aligarh, Hathras, Mathura, and Agra.

YEIDA Phase-I focused on industrial development near Jewar Airport, while **Agra Urban Centre in YEIDA Phase-II** shall bring about industrial development near the Southern end of the expressway.

The following table shows the existing land use land cover of YEIDA Phase-1 & Phase-2.

Table 1-2 LULC of YEIDA Phase-1 & Phase-2

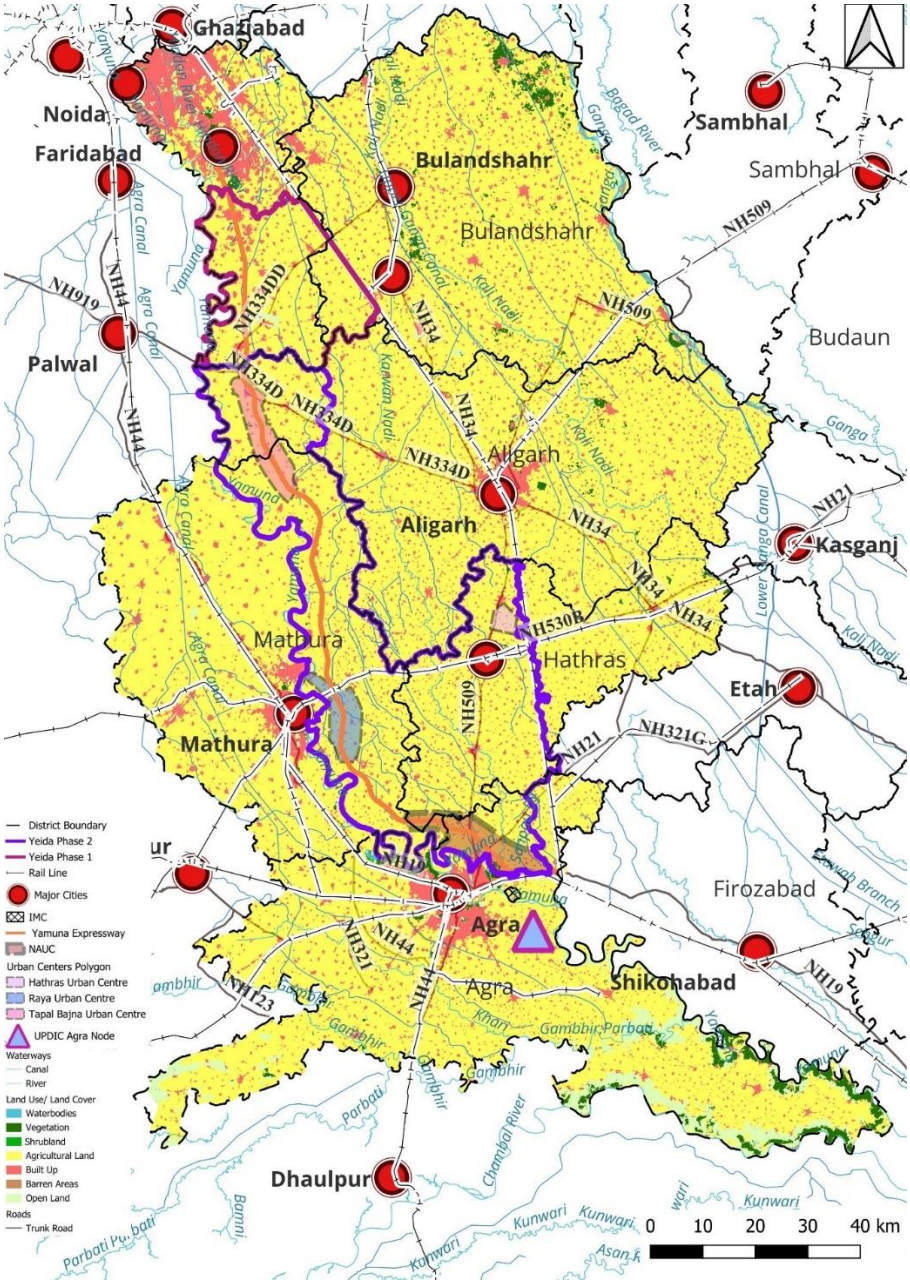
Phase 1		
Category	**Area (in Sq. Km.)**	**Percentage**
Waterbodies	1.64	0.22
Vegetation	1.83	0.24
Shrubland	1.15	0.15
Agricultural Land	660.05	86.72
Built Up	86.28	11.34
Barren Area	0.16	0.02
Open Land	10.01	1.31
Total	**761.11**	**100.00**

Phase 2		
Category	**Area (in Sq. Km.)**	**Percentage**
Waterbodies	15.93	0.59
Vegetation	7.15	0.26

Shrubland	1.00	0.04
Agricultural Land	2459.25	90.43
Built Up	226.40	8.33
Barren Area	2.83	0.10
Open Land	6.89	0.25
Total	**2719.44**	**100.00**

Source: Consultant Analysis based on Sentinel-2 data from Copernicus (year 2025)

Figure 1-6 Land Use Land Cover of YEIDA Region

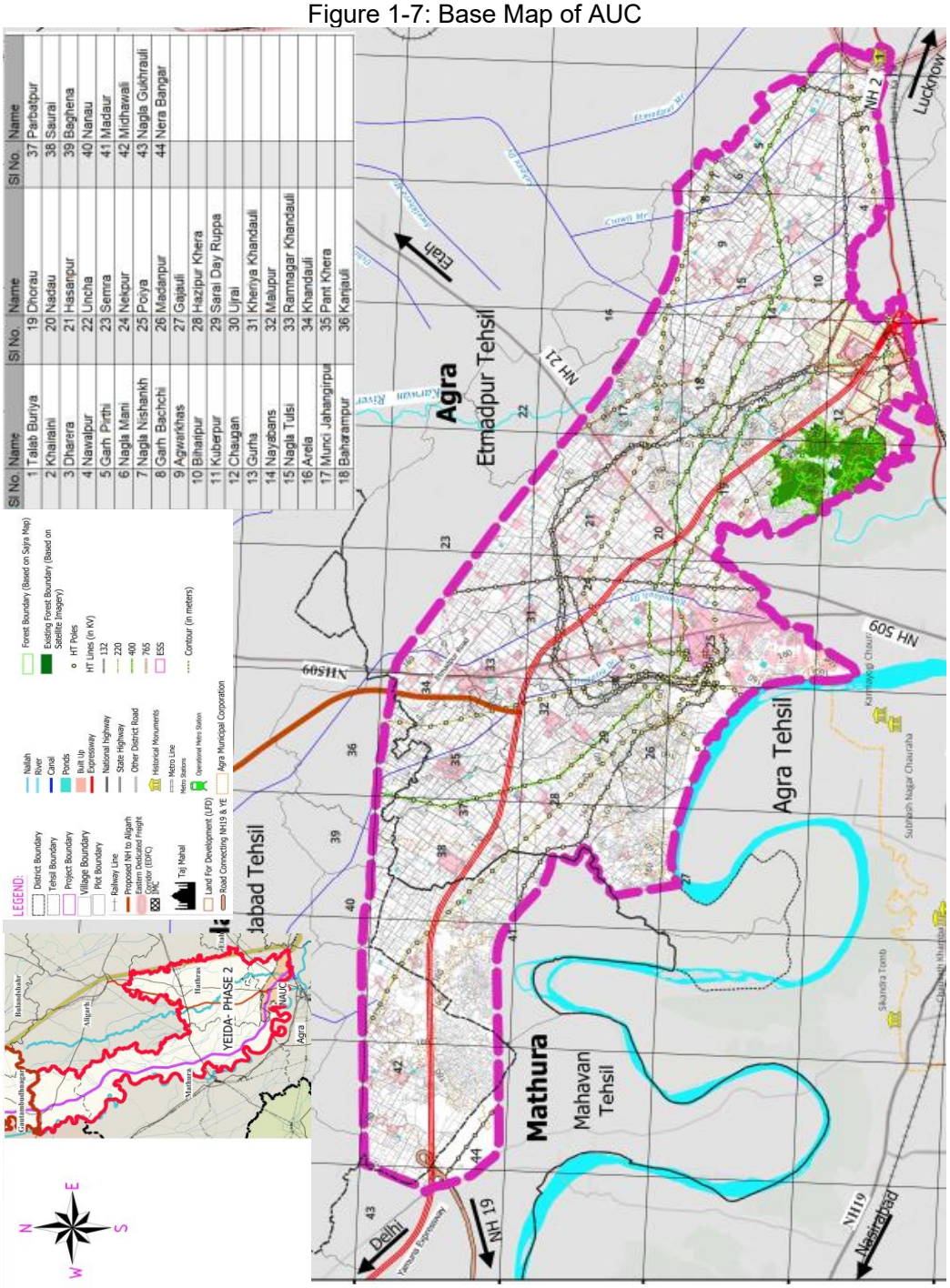


Source: Prepared by consultant based on Sentinel-2 data from Copernicus (year 2025)

1.7.5. Base Map of Agra Urban Centre

The site for the Agra Urban Centre is a vast area of approximately 144.80 Sq.Km., which is to be developed on land from 44 villages located across the Agra (37), Mathura (3), and Hathras (4) districts. This strategic location is intended to provide excellent connectivity via the Yamuna Expressway and the Eastern Dedicated Freight Corridor (EDFC) and is expected to benefit from the proximity to major projects like the Noida International Airport in Jewar. The development is proposed on both sides of the Yamuna Expressway, focussing on Non-Polluting industries, transport, tourism, IT industries and sustainable development.

Figure 1-7: Base Map of AUC



Sl No.	Name	Sl No.	Name	Sl No.	Name
1	Talab Buriya	19	Dhorau	37	Parbatpur
2	Khainaini	20	Nadau	38	Saurai
3	Dharera	21	Hasanpur	39	Baghena
4	Nawalpur	22	Uncha	40	Nanau
5	Garh Pirthi	23	Semra	41	Madaur
6	Nagla Mani	24	Nekpur	42	Midhawali
7	Nagla Nishankh	25	Poiya	43	Nagla Gukhrauli
8	Garh Bachchi	26	Madanpur	44	Nera Bangar
9	Agwankhas	27	Gajauli		
10	Bihanpur	28	Hazipur Khera		
11	Kuberpur	29	Sarai Day Ruppa		
12	Chaugain	30	Ujrai		
13	Gurha	31	Kheriya Khandauli		
14	Nayabans	32	Maupur		
15	Nagla Tulsi	33	Rammagar Khandauli		
16	Areta	34	Khandauli		
17	Munci Jahangirpur	35	Pant Khera		
18	Baharampur	36	Kanjauli		

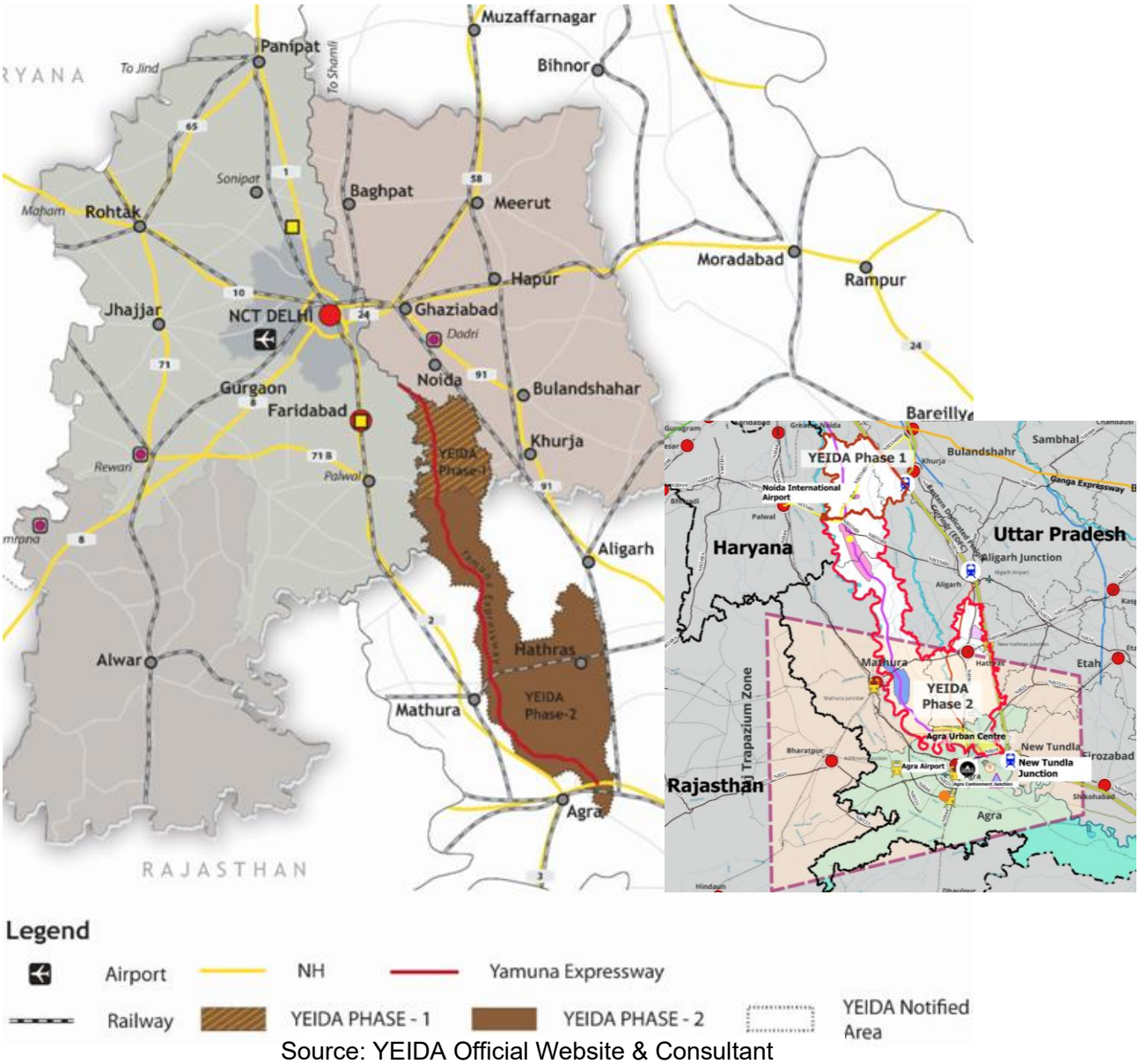
Source: Prepared by consultant based on sources mentioned in methodology

2. REVIEW OF PLANNING PROPOSALS INFLUENCING AGRA URBAN CENTRE

2.1 Master Plan- 2041 YEIDA Phase I

The YEIDA Master Plan 2041 is tailored to facilitate organized growth and infrastructure development within the designated area for Phase I. By focusing on the 2041 plan, we can effectively address local challenges, optimize resource allocation, and enhance connectivity and amenities.

Figure 2-1 The Notified area of YEIDA



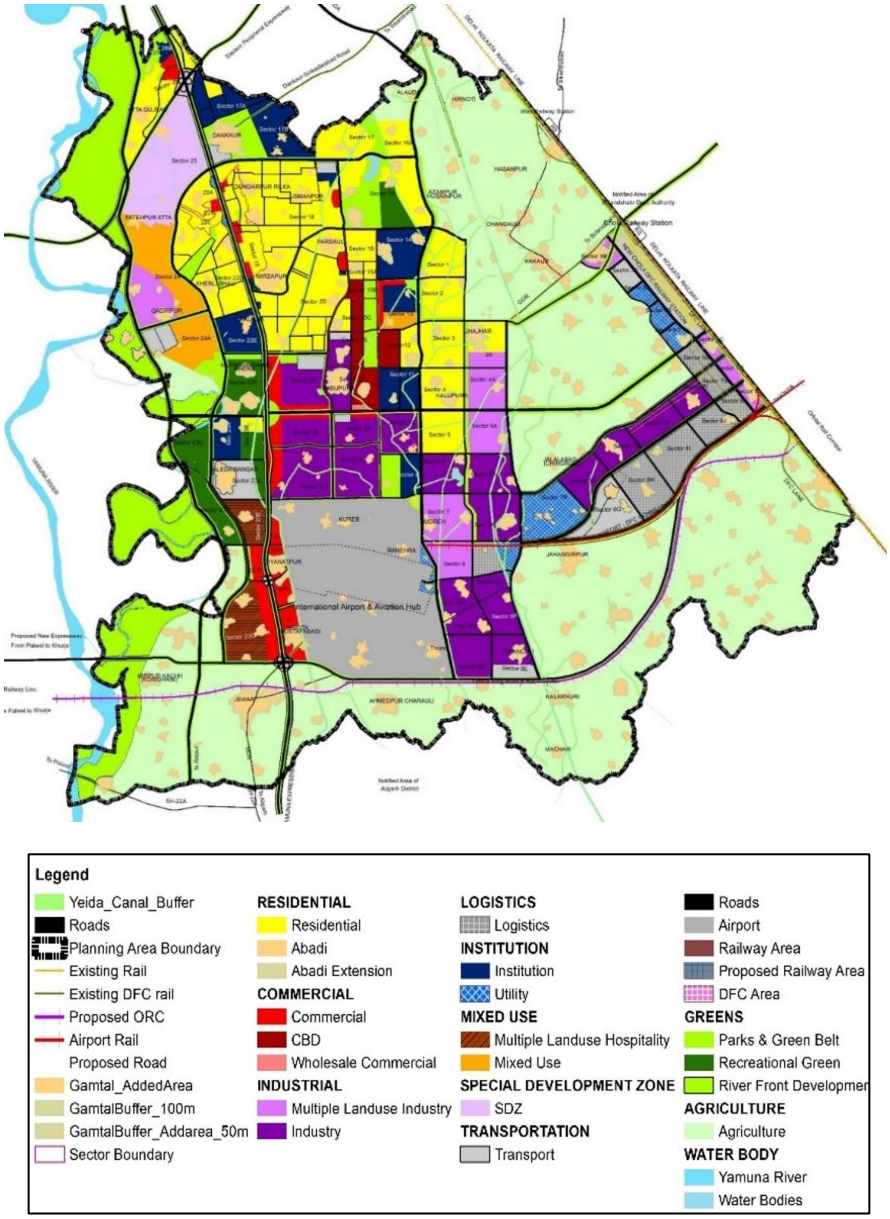
Source: YEIDA Official Website & Consultant

The **YEIDA Phase-1 Master Pan 2041** outlines a structured vision for urban growth within the Yamuna Expressway Industrial Development Authority boundary, ensuring consolidated and planned development.

Residential zones focus on liveability with integrated amenities and infrastructure, while commercial areas include **CBDs, retail hubs, and wholesale markets** to drive economic activity. **Industrial zones (purple)** are designated for multiple-use industries and manufacturing, strategically linked with **logistics hubs (grey)** for warehousing and transport services, strengthening trade and supply chains.

Transport infrastructure is a key highlight, featuring a **hierarchical road network, airport connectivity, the Dedicated Freight Corridor (DFC), and a proposed airport rail link**. These initiatives integrate seamlessly with the **Noida International Airport and Aviation Hub**, forming the backbone of regional and national connectivity.

Figure 2-2: YEIDA Phase-1 Master Plan 2041



Source: YEIDA official Website

Table 2-1 Proposed Land use in YEIDA phase-1

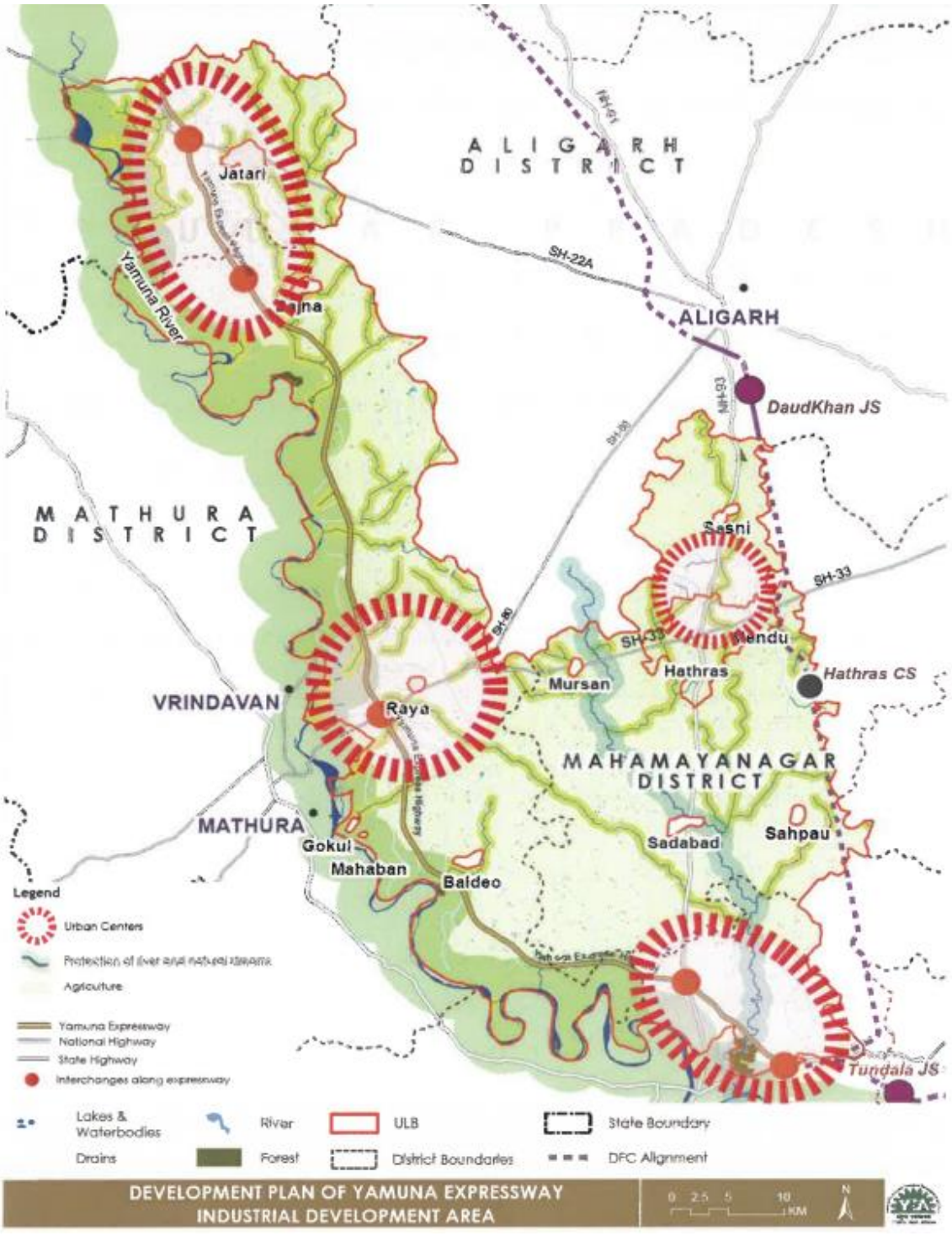
SrNo	Landuse	Sub Landuse	Area (Ha)	%	Con. Area (Ha)	Con.(%)
1	Residential	Residential	6806.59	18.13	9785.26	26.07
		Existing Village Abadi	1811.22	4.82		
		Village Abadi Extension	1167.46	3.11		
2	Commercial	Commercial	1583.6	4.22	2076.77	5.53
		Wholesale Commercial	14.82	0.04		
		Central Commercial Area	478.35	1.27		
3	Multiple Landuse Hospitality	Multiple Landuse Hospitality	797.55	2.12	797.55	2.12
4	Industrial	Industrial	4637.56	12.35	6605.91	17.6
		Multiple Landuse Industry	1968.35	5.24		
5	Mixed Use	Mixed Use	1042.18	2.78	1042.18	2.78
6	Logistics	Logistics	1500.04	4	1500.04	4
7	SDZ	SDZ	1142.16	3.04	1142.16	3.04
8	Public & Semi-Public	Institutional	2125.14	5.66	2808.97	7.48
		Utility/Facility	683.83	1.82		
9	Transportation	Transportation	5900.28	15.72	5900.28	15.72
10	Greens	Green Belt	2789.41	7.43	5544.27	14.77
		Park & Play Ground	1752.95	4.67		
		Recreational Green	1001.91	2.67		
11	Water Body	River/Canal/Drain/Lake/Pond	335.53	0.89	335.53	0.89
(A)		**Total Urbanisable Area**	**37538.91**	100		
12		Village Abadi outside Urbanisable area	1276.05			
13	Non Urbanizable	Village Abadi Extension outside Urbanisable area	1540.21			
14		River Front Development	4517.61			
15		Airport	6286.73			
16		Agriculture & Remaining Area	25776.85			
(B)		**Total Non-Urbansisable Area**	**39397.46**			
		Grand Total(A+B)	**76936.37**			

Source: Master Plan-2041, YEIDA Phase-1

2.2 YEIDA Master Plan- 2031 (YEIDA- Phase II)

The **YEIDA Master Plan–2031 for Phase-2** focuses on the planned development of YEIDA Phase II, with the aim of accommodating future growth driven by large-scale infrastructure and economic activities. YEIDA Master plan 2031 identifies four urban centres in YEIDA Phase II, that is Tappal Bajna, Raya, Hathras and Agra Urban Centre.

Figure 2-3: Four Urban centres identified by Yamuna Expressway Industrial Development Authority



Source: YEIDA Phase-2 Master Plan 2031

The **Master Plan–2031** projects a population of **3.5 million (35 lakh)** by 2031 in all the urban centres combined.

Table 2-2 Broad Land use Distribution for Urban Centres

S. No.	Land use	Percentage (%)
1	Residential (including abadi)	20-28
2	Commercial	4-6
3	Industrial	18-28
4	Public-Semi-Public	6-9
5	Recreational	18-22
6	Transportation	12-18
7	Other Natural Features (water bodies, forest etc.)	-
8	Other special uses (Mixed Use, Any other etc.)	-
	Total	**100**

Source: YEIDA Masterplan 2031 Phase II

Currently, **66% of the workforce** is employed in agriculture, while only **6%** is engaged in secondary sectors, underscoring the need for diversification into industry and services. **Etmadpur Tehsil**, the most urbanized part of Phase 2, shows potential for service-led growth with **38% of workers** in tertiary activities.

Strategically positioned within the **Golden Triangle (Delhi–Agra–Jaipur)**, the region benefits from the **Yamuna Expressway**, which has reduced travel times and enhanced connectivity. This opens opportunities for expanding **tourism infrastructure**, recreational facilities, and encouraging longer tourist stays to strengthen the local economy.

The **drainage network**, comprising the **Mat Branch (Lower Ganga Canal)**, distributaries, and minor branches, provides irrigation and urban water supply. The canal concentration is higher on the **eastern side** of the Yamuna Expressway. Meanwhile, the **road network** is a key determinant of urban centre development, with accessibility provided through **expressway interchanges, railways, the Eastern DFC, and national/state highways**. The expressway itself will act as the **development spine**.

The **vision for YEIDA Phase 2 under the Master Plan–2031** is to establish a **sustainable, well-planned Greenfield urban centre** with balanced growth and modern infrastructure. Key features include:

- **High containment ratio** to reduce traffic demand within city limits and ease congestion.
- **Affordable housing** for industrial workers, alongside a strong **public transport system** (Metro, buses, cycle tracks, pedestrian pathways).
- A **central commercial hub** with world-class infrastructure and an **iconic pedestrian promenade**.
- **Peripheral roads** to divert heavy industrial traffic and **logistics facilities** near the airport to support trade.
- **Green buffers** along the Yamuna River, water bodies, and canals to ensure environmental sustainability.
- Integration of **existing villages** to promote inclusive and harmonious development.

Proper planning of **Agra urban centre within YEIDA Phase 2** is of critical importance, given its environmental sensitivity due to the **Yamuna River** and the **Taj Trapezium Zone (TTZ)**, which covers **54% of Phase 2**. Careful planning in compliance with Supreme Court directives is therefore essential to balance development and environmental protection.

2.3 Noida International Airport

The **Noida International Airport (NIA)** is an upcoming greenfield airport situated near Jewar in Gautam Buddha Nagar district, Uttar Pradesh, India. Strategically located to serve the National Capital Region (NCR), including Noida and Greater Noida, NIA aims to alleviate congestion at Delhi's Indira Gandhi International Airport and bolster regional connectivity. The foundation stone for NIA was laid by Prime Minister Narendra Modi on November 25, 2021. The first phase of the airport is slated to commence commercial operations in the first half of 2026.

NIA's development is planned in multiple phases, Phase 1 would be designed to handle 12 million passengers annually, with one runway and a single terminal. The airport will expand to accommodate up to 70 million passengers per year upon completion of all phases, featuring additional runways and terminals. (Techno feasibility report, PwC, 2018)

The new airport will substantially improve regional, national, and international connectivity. It will reduce congestion at IGI Delhi and enhance access to air travel for western Uttar Pradesh, parts of Haryana, Rajasthan, and Madhya Pradesh. Improved road and proposed rail linkages will further strengthen multimodal connectivity and reduce travel time across the region. The airport is a major economic catalyst, generating large-scale employment during construction and operational phases. It is expected to stimulate growth in aviation-related services, logistics, warehousing, hospitality, tourism, and allied industries in the region, boosting the regional economy.

NIA, situated approximately 120 Km from Agra Urban Centre, accessible through the Yamuna Expressway, shall act as a major growth catalyst of the urban centre, enabling international connectivity for goods and passengers. Alternative connectivity options such as regional rail may further enhance the connectivity of AUC with NIA.

3. DEMOGRAPHY AND SETTLEMENT ANALYSIS

The Agra Urban Centre encompasses a total of **44 villages** distributed across the districts of Agra, Mathura, and Hathras. The demographic and infrastructural characteristics of these villages exhibit significant dynamism, both in terms of population distribution and access to essential services. Semra emerges as the most populous village, with a recorded population of 19,143 according to the 2011 Census, followed by Poiya with 14,732 residents, and Malpura with 10,502. In contrast, Khairani stands as the least populated village, registering a population of zero, while Dharera ranks second with a meager population of 166 individuals.

From a population density perspective, Agwarkhas is notably the most densely populated village, with an astonishing 340 individuals per hectare, closely trailed by Talab Buriya, which holds a density of 298 persons per hectare. The remaining villages exhibit significantly lower population densities, most registering fewer than 10 individuals per hectare. These demographic patterns underscore a clear spatial concentration of essential amenities and economic opportunities within or in proximity to these more densely populated areas.

Table 3-1 List of Villages in AUC with Population and Area

Sl. No.	Village	Population (Census 2011)	Area (Ha)
1	Agwarkhas	7344	21.6
2	Arela	2349	339.9
3	Baghena	1670	288.1
4	Bahrampur	2523	512.2
5	Biharipur	1347	233.6
6	Chaugan	4386	926.1
7	Dharera	166	517.5
8	Dhorau	3329	236.8
9	Gangoli	1693	227.1
10	Garhibachchi	1084	117.8
11	Garhi Pirthi	602	64.1
12	Gurha (gudha)	3237	738.1
13	Hasanpur	2571	199.9
14	Hazipur Khera	2908	589.3
15	kanjauli	7501	814.4
16	Khairani (Gairabad)	0	169.3
17	Khandauli (CT)	8625	242.5
18	Kheriya Khandauli	1499	109.9
19	Kuberpur	3693	694.2
20	Madan Pur	686	381.5
21	Madaur	2566	1719.2
22	Malpura	10502	500.9

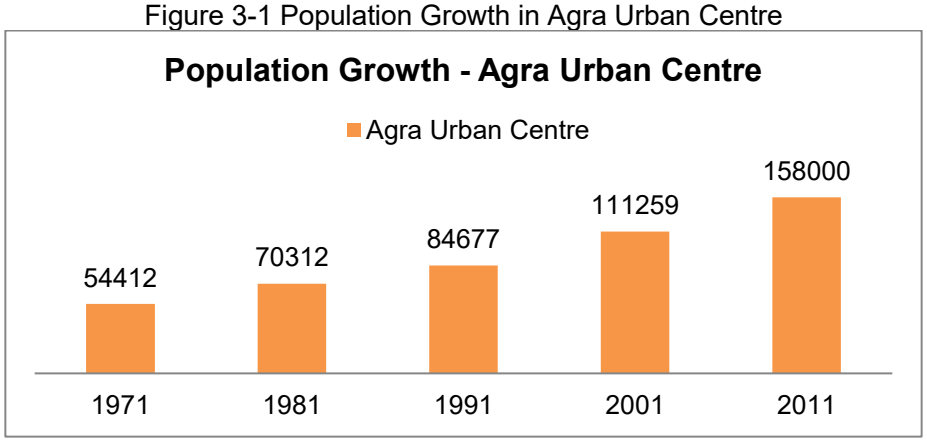
23	Midhawali	5159	1677.4
24	Mundi Jahangirpur	4922	597.3
25	Nadau	4068	410.1
26	Nagla Gukhrauli	3141	330.0
27	Nagla Mani	853	44.8
28	Nagla Nishankh	583	147.6
29	Nagla Tulsi	1885	161.7
30	Nanau	792	145.9
31	Nawalpur	1800	240.8
32	Nayabans	1357	151.2
33	Nekpur	2777	243.8
34	Nera Bangar	3,975	1324.0
35	Pant Khara	5005	368.0
36	Parbatpur	811	82.1
37	Poiya	14732	1403.8
38	Ramnagar Khandauli	7017	322.7
39	Sarai Day Ruppa	1859	175.4
40	Semra	19143	536.9
41	Sorai	4101	349.0
42	Talab Buriya	6016	20.2
43	Ujrai	2522	372.7
44	Uncha	3266	591.9

Source: Census 2011

3.1 Population size, distribution and growth

Agra Urban Centre has a population of 1,58,000 as per census 2011. Agra Urban Centre area has seen a consistent increase in population since 1971 has shown in the figure below.

Figure 3-1 Population Growth in Agra Urban Centre



Source: Census of India

Comparison with state, district and Agra City

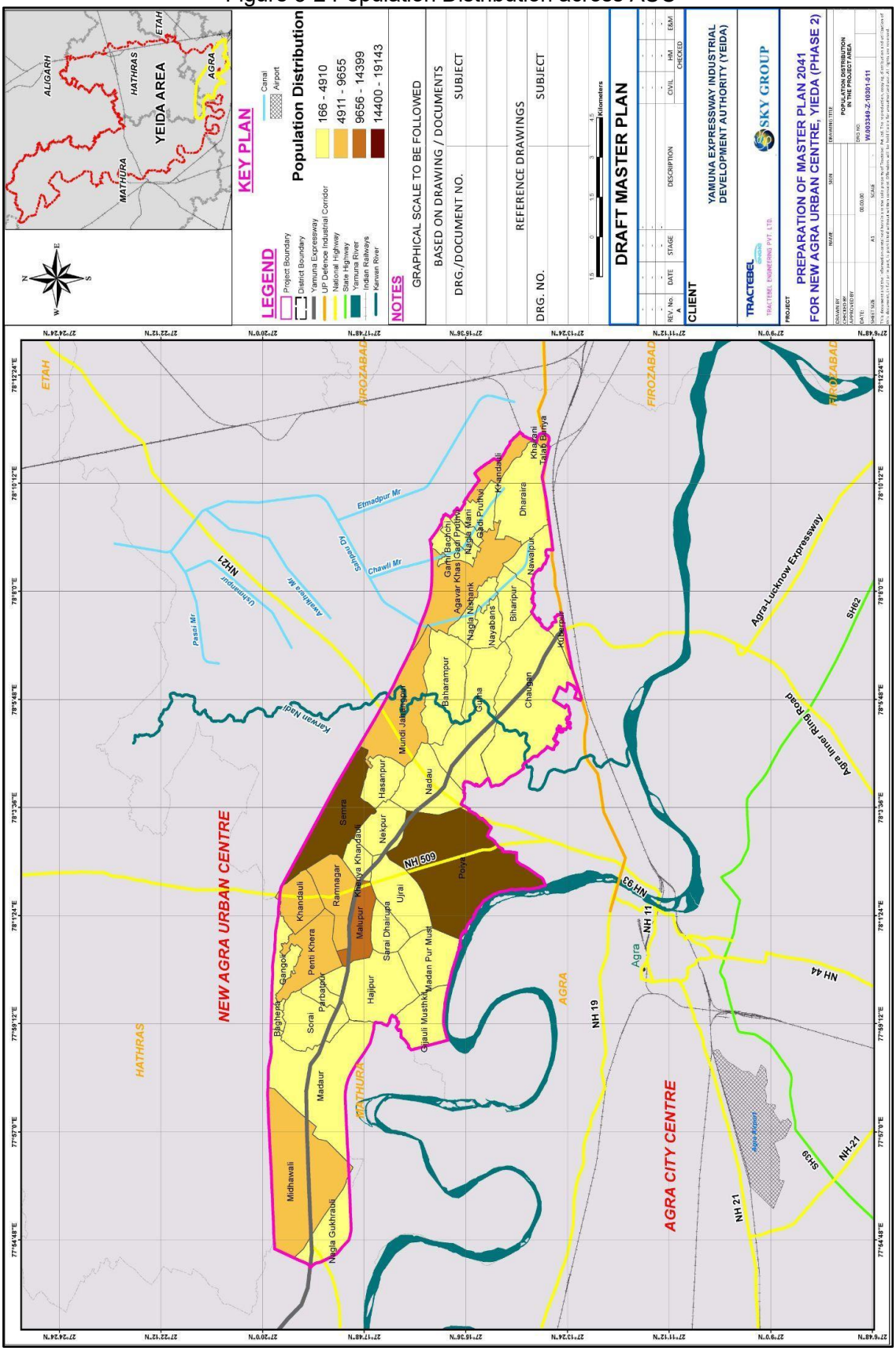
Uttar Pradesh is one of the fastest growing states in the country. Since 1971, the state has seen a consistent growth rate of 20% - 25% as seen in the table. Keeping with the trend at the state, the Agra city as well as the Agra district has also experienced a growth of 20% to 25% over the last four decades. The Agra Urban Centre has seen a growth pace at par with the Agra city. The growth rate on the last decade between 2001-2011 in the Agra Urban Centre has been 24%.

Table 3-2 Decadal Growth Rate in Agra Urban Centre

Decadal Growth Rate				
Census Year	**Agra Urban Centre**	**Agra City**	**Agra District**	**Uttar Pradesh**
1971-81	25%	20%	22%	25%
1981-91	18%	28%	22%	26%
1991-2001	28%	43%	33%	26%
2001-2011	30%	24%	24%	20%

Source: Census of India

Figure 3-2 Population Distribution across AUC

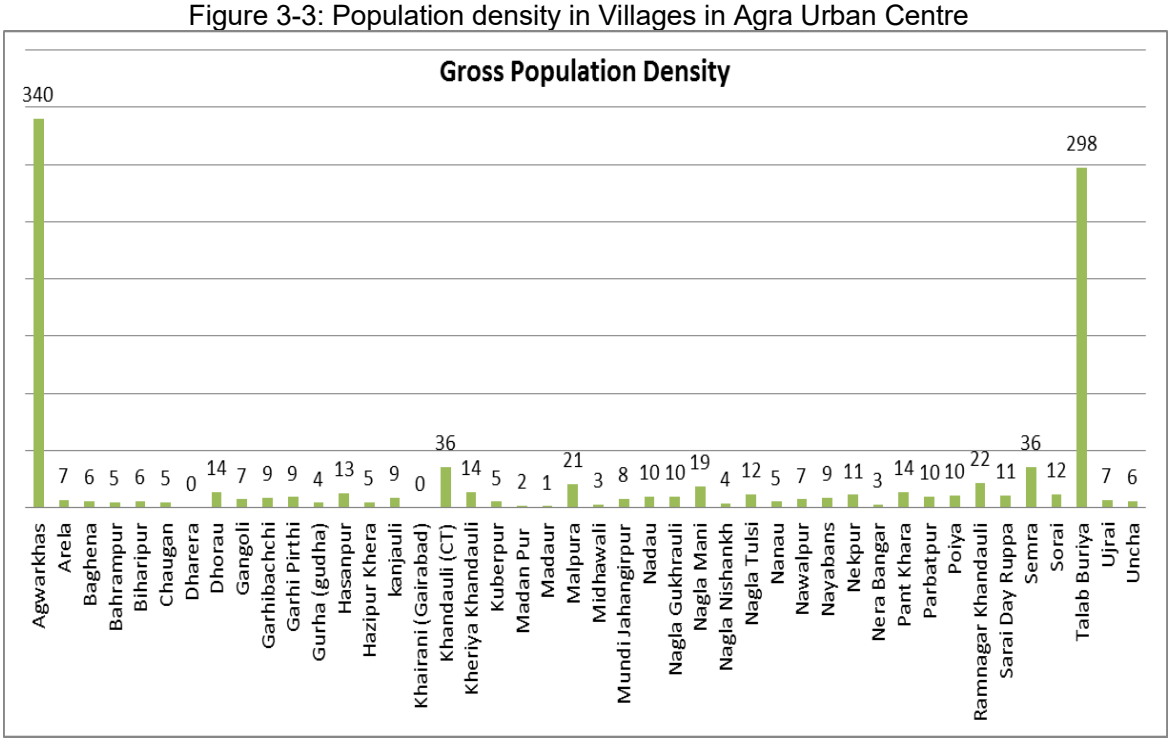


Source: Prepared by consultant based on Census 2011 data

3.2 Population Density

The gross population density is calculated as total population divided by total village area. The gross density in the Agra Urban Centre ranges from as low as 0 person per Ha in Khairani to a high of 340 persons per Ha in Agwarkhas and 298 persons per Ha in Talab Buriya.

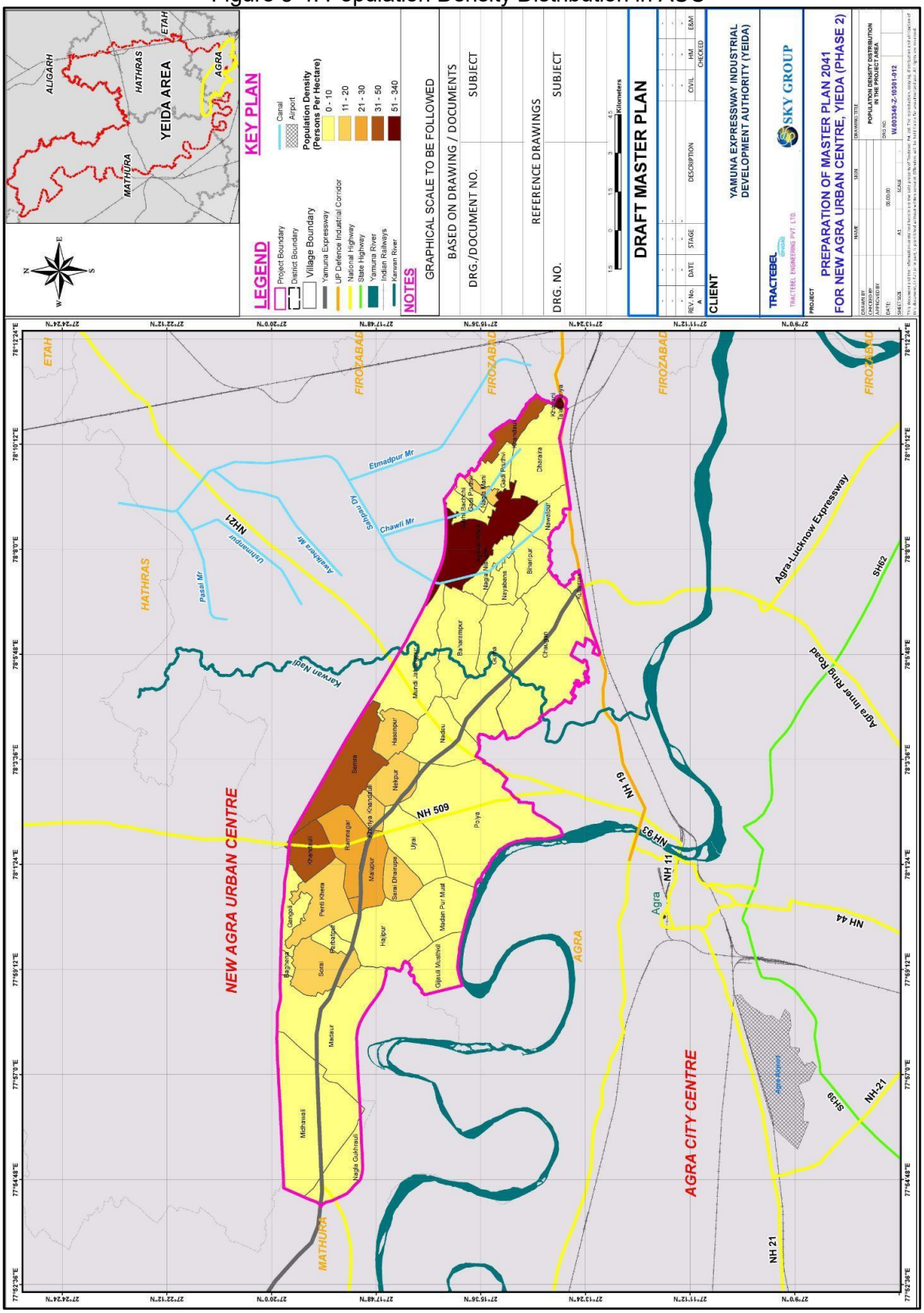
Figure 3-3: Population density in Villages in Agra Urban Centre



Source: Census 2011

As illustrated in Figure 3-4 the spatial distribution of population is predominantly oriented along the Yamuna Expressway, exhibiting a pronounced pattern of ribbon development. The highest population densities are concentrated along the western corridor adjoining the expressway, indicative of intensified linear growth. In contrast, medium-density development is evident in the central zone, particularly around the interchange of NH-509 and the Yamuna Expressway, as well as along NH-21, where a similar ribbon-like concentration is observed. These patterns collectively underscore the strong influence of major transportation corridors and interchange nodes in shaping settlement concentration and the overall urban form.

Figure 3-4: Population Density Distribution in AUC



Source: Prepared by consultant based on Census 2011 data

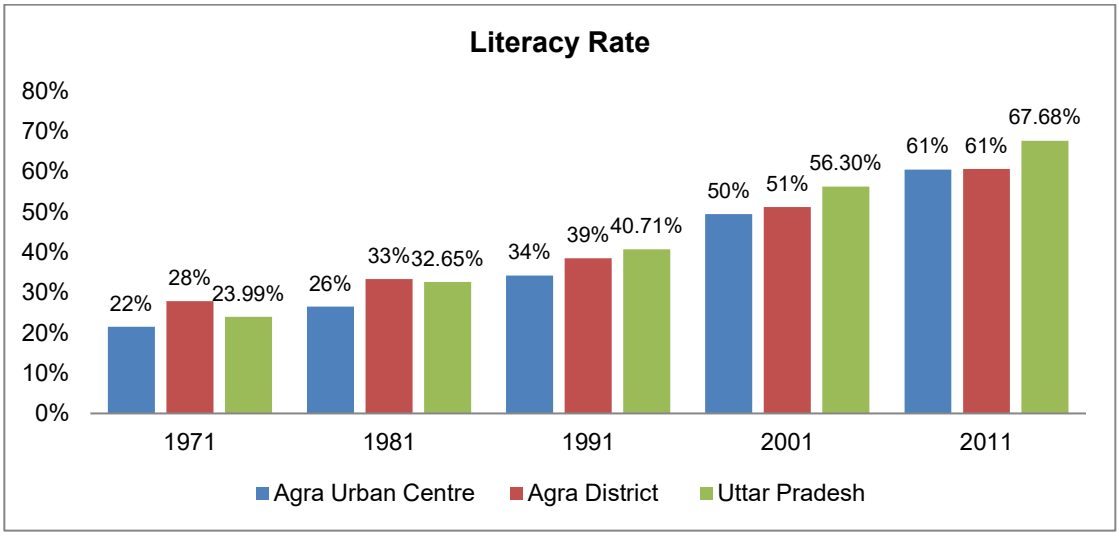
3.3 Population Characteristics

3.3.1 Literacy Rate

According to the 2011 census, India's literacy rate was 74.04%, Males literacy rate being 82.14% and female literacy rate being 65.46%.

Aggregate literacy rate in Uttar Pradesh is 67.68% while that in Agra city and Agra Urban Centre is 61%.

Figure 3-5: Literacy rate in Agra Urban Centre, Agra City and Agra district

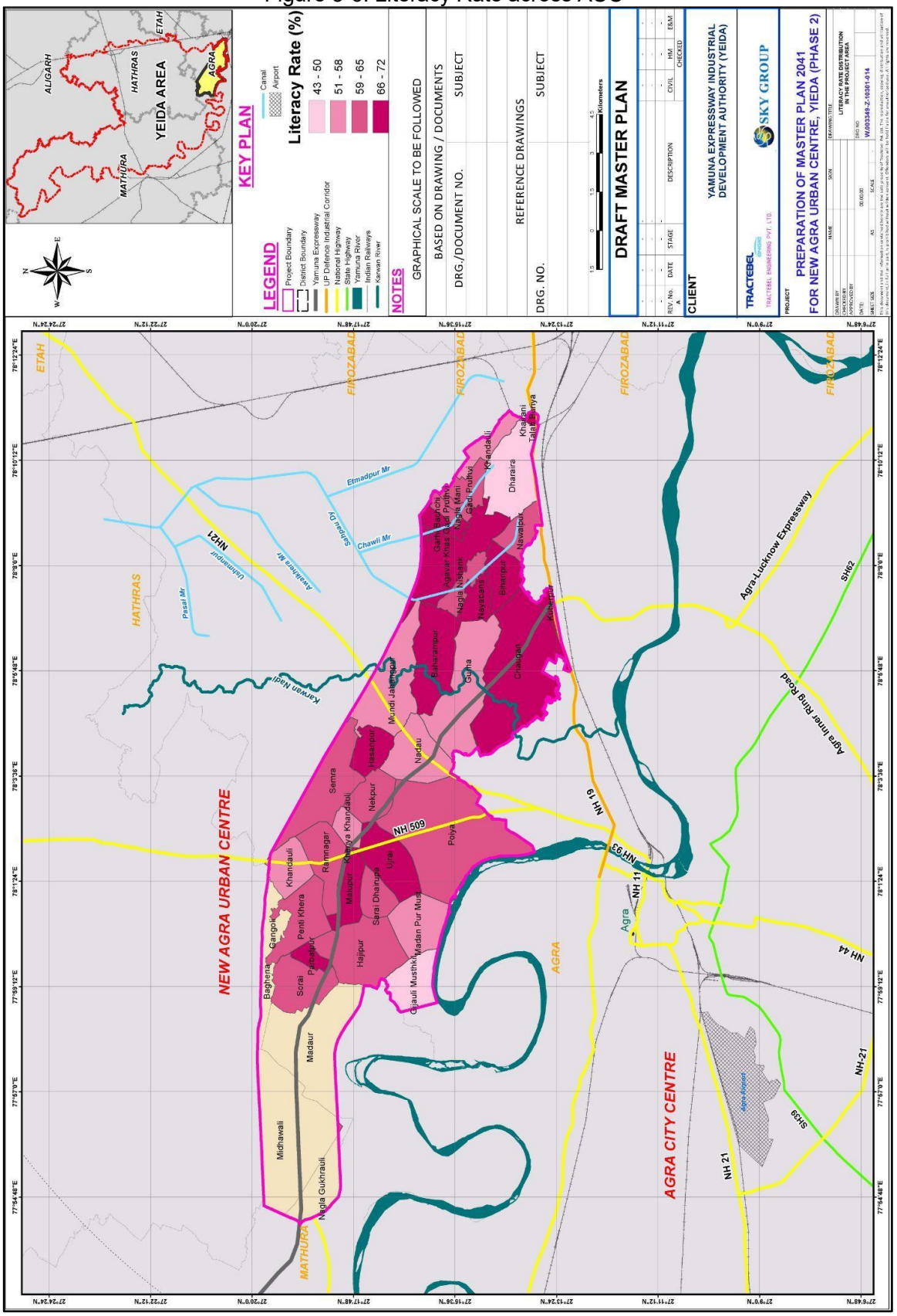


Source: Census of India

As per the 2011 Census, Agra district reported an overall literacy rate of 71.6%, with a slightly lower rate of 70.6% in its rural areas. Within the Agra Urban Centre, notable inter-village variations in literacy levels are evident among the 44 constituent villages. Bahrampur and Ujrai emerge as the most literate villages, each recording a literacy rate of 72%, surpassing both the district and state averages. These are followed by Garhibachchi at 70%, and Talab Buriya and Nagla Gukhrauli, each with a literacy rate of 68%. In contrast, significantly lower literacy levels are observed in certain villages, most notably Dharera, with a literacy rate of 50%, and Khandauli, Madan Pur, and Mundi Jahangirpur, each registering 51%. These disparities underscore pronounced spatial inequalities in educational attainment within the district.

The male literacy rate in Uttar Pradesh is 77.28%, that in Agra district is 68% and in Agra Urban Centre is 69%. The female literacy rate in Uttar Pradesh is 57.18%, that in Agra district is 52% and in Agra Urban Centre is 51%.

Figure 3-6: Literacy Rate across AUC

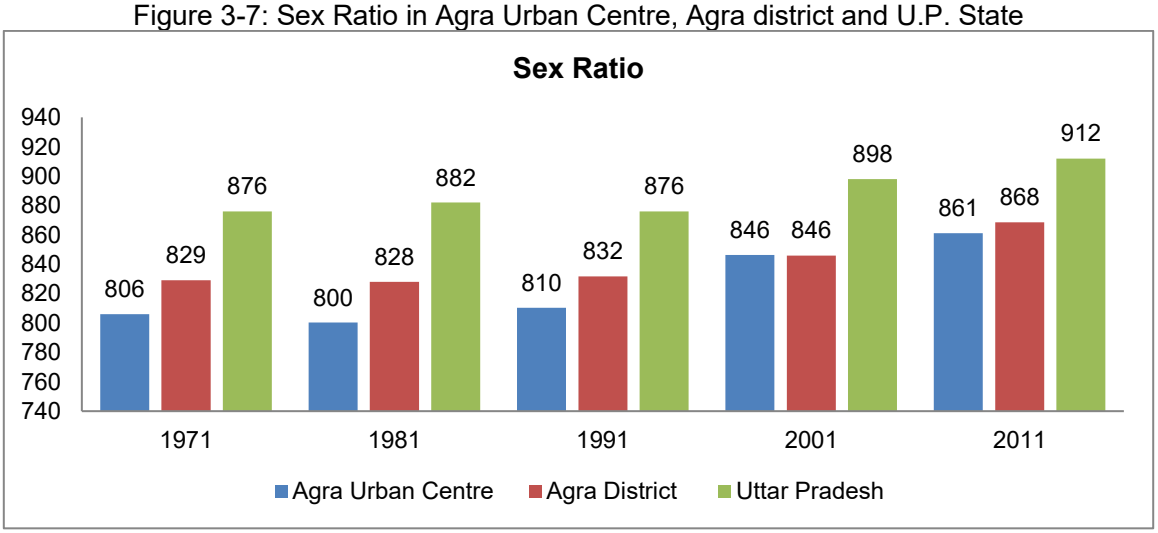


Source: Prepared by consultant based on Census 2011

3.3.2 Sex ratio

In Uttar Pradesh, the sex ratio has increased over the last four decades from 876 to 912 females per 1000 males. According to 2011 Census, the gross sex ratio in Agra district stood at 869 females per 1,000 males, with a marginally lower ratio of 863 females per 1,000 males recorded in the rural areas. In the Agra Urban Centre, the sex ratio is 861 females per 1000 males. The low sex ratio may be indicative of in-migration of male working population into the peripheral areas of Agra city (where Agra Urban Centre is located) in search of economic opportunities.

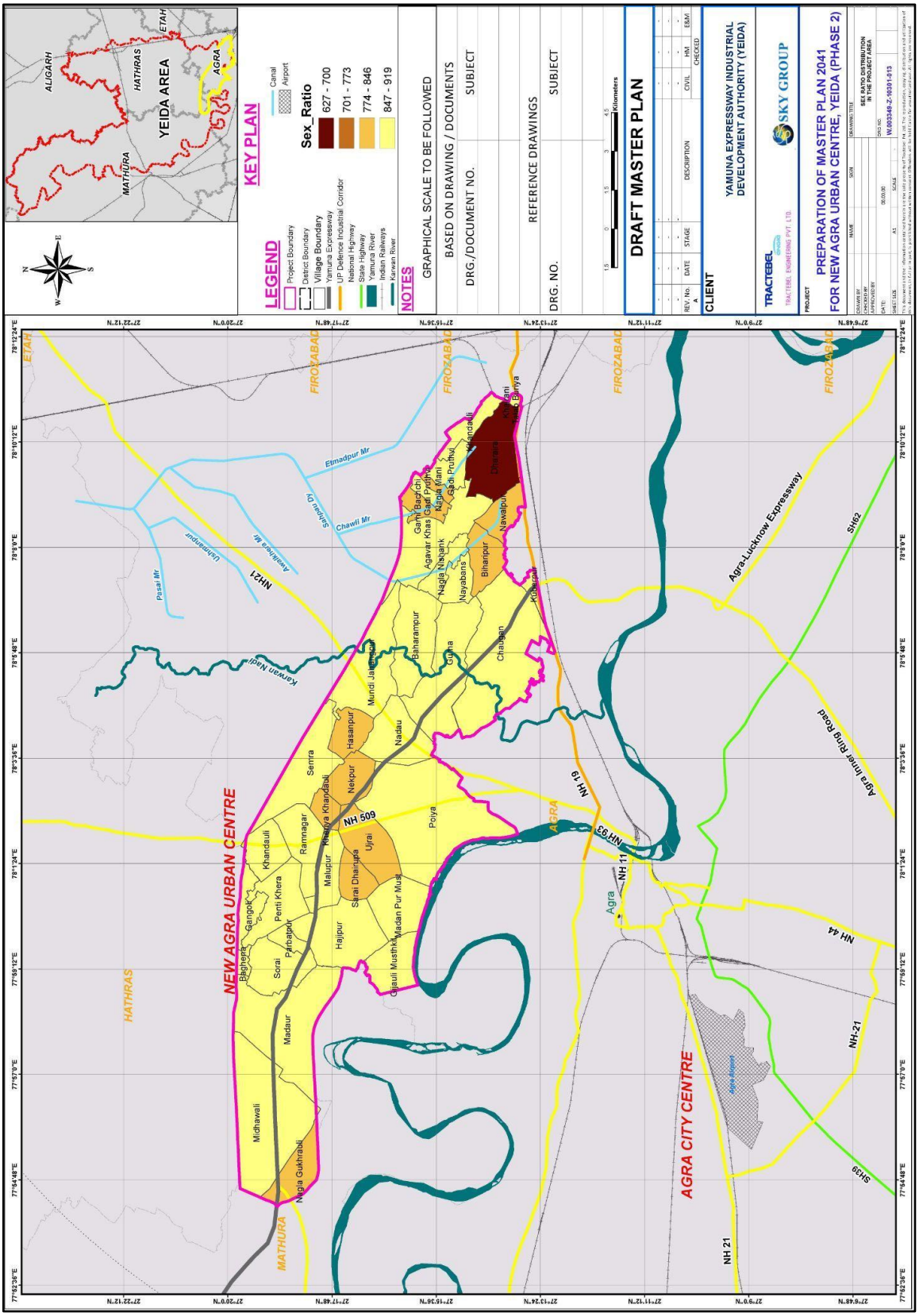
Figure 3-7: Sex Ratio in Agra Urban Centre, Agra district and U.P. State



Source: Census 2011

According to the 2011 Census, the gross sex ratio in Agra district stood at 869 females per 1,000 males, with a marginally lower ratio of 863 females per 1,000 males recorded in the rural areas. Within the villages of the Agra Urban Centre, Kuberpur presents the most favorable scenario in terms of gender balance, registering a sex ratio of 919 females per 1,000 males. This is followed by Sorai and Madaur, both reporting 888 females per 1,000 males—figures that exceed the district average, though they remain below the state-level sex ratio. Conversely, pronounced gender disparities are evident in certain villages, notably Dharera, which records a critically low sex ratio of 627 females per 1,000 males, and Nawalpur, with 789 females per 1,000 males. These contrasts highlight significant intra-regional variations in gender equity within the Agra Urban Centre.

Figure 3-8: Sex ratio Distribution across AUC



Source: Prepared by consultant based on Census 2011

3.3.3 Household Size

Urban areas tend to have smaller households due to higher living costs and limited space. Rural areas often have larger households due to agricultural lifestyles requiring more labour.

The average household size in Uttar Pradesh as per census 2011 is 6.1, while that in Agra Urban Centre is 6.3. The large household size is indicative of agrarian and rural development pattern.

Table 3-3 Household size in Agra Urban Centre, Agra district and Uttar Pradesh State

Household Size			
Census Year	**Agra Urban Centre**	**Agra District**	**Uttar Pradesh**
1971	6.0	5.1	5.6
1981	6.1	5.3	5.8
1991	6.9	5.3	6.3
2001	6.7	5.9	6.5
2011	6.3	6.2	

Source: Census, 2011

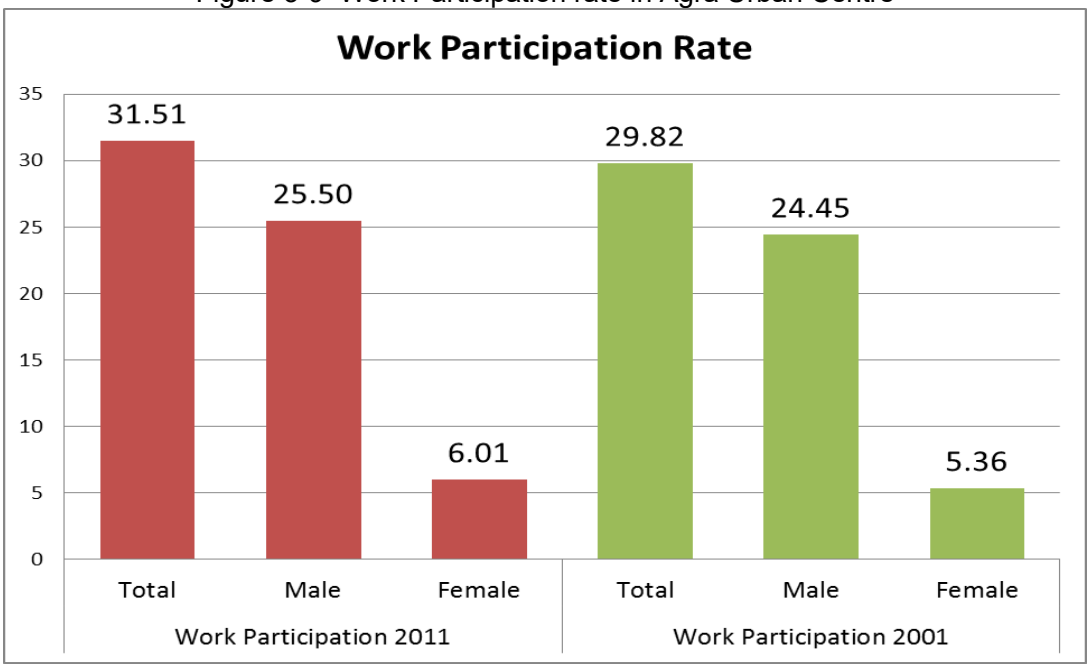
3.3.4 Workforce Participation

The work participation rate, also known as the labor force participation rate, measures the proportion of a population that is either employed or actively seeking employment.

According to the 2011 census, India's workforce participation rate (WPR) was 53.26% for males and 25.51% for females. The WPR was higher in rural areas than urban areas for females, but there was no such gap for males.

- Rural work participation rate for India: 30.02% for females, 53.03% for males
- Urban work participation rate for India: 15.4% for females

Figure 3-9 Work Participation rate in Agra Urban Centre

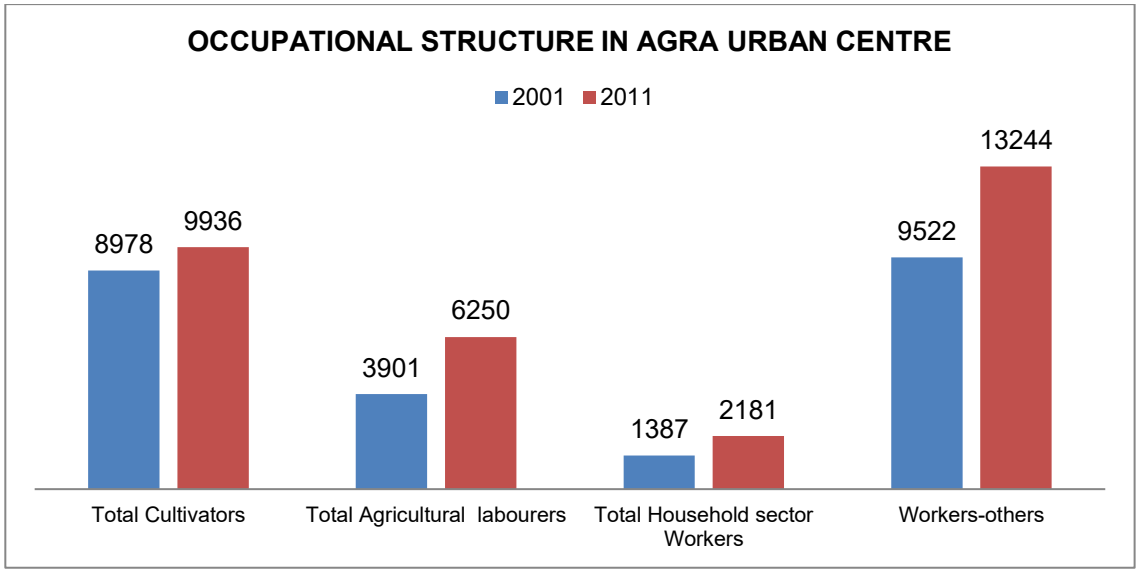


Source: Census 2011

The aggregate work participation rate in Agra Urban Centre as per census 2011 is 31.51%, male work participation rate being 25.5% and female work participation rate being 6.01%.

Economic growth or recession can significantly impact employment opportunities and, consequently, participation rates. Age distribution, educational attainment, and gender composition influence labor force engagement, societal attitudes toward work, especially concerning gender roles, affect participation.

Figure 3-10: Occupational Structure in Agra Urban Centre



Source: Census of India

As seen in the occupational structure, a larger share of workers is involved in agricultural activities. It is revealed from the primary household survey that majority of the workers have 9-12 months of work in a year.

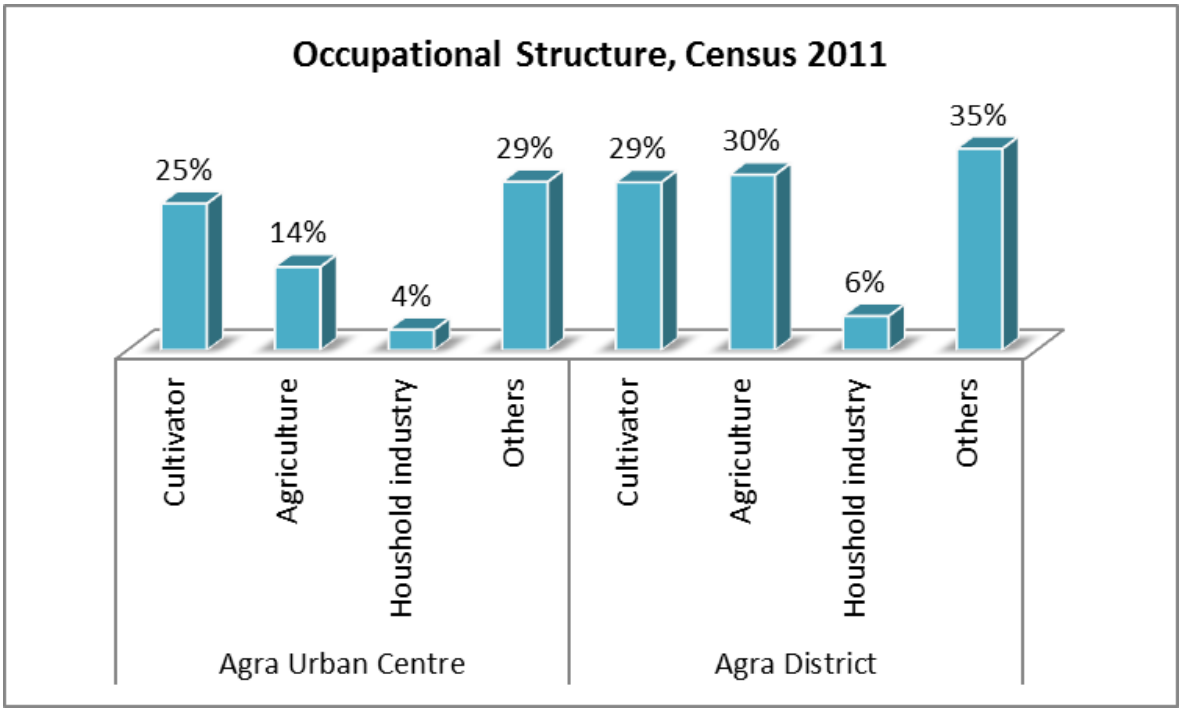
Table 3-4 Months of Employment among workers in villages coming under Agra Urban centre

Months of Employment in a Year	Percentage of Samples
No employment	0.4%
0-3 months	0.2%
3-6 months	1.4%
6-9 months	1.6%
9-12 months	96.5%
TOTAL	100

Source: Primary Survey, 2024

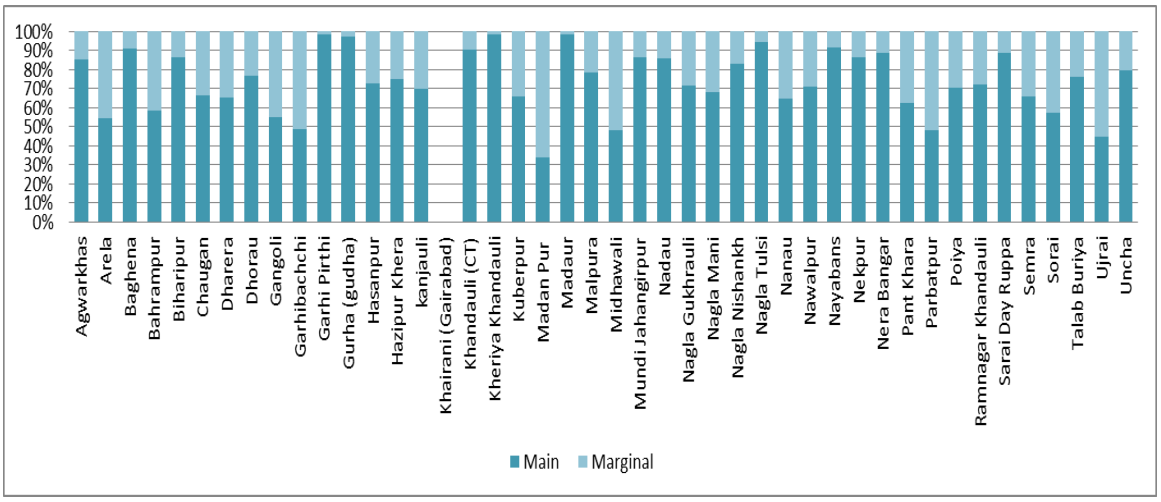
A comparative assessment of the occupational structure of Agra Urban Centre vis-à-vis Agra district, based on Census 2011 data, reveals notable structural differences in workforce composition. At the district level, employment across agriculture labourers, cultivators, and other workers appears to be relatively evenly distributed, while the household industry sector constitutes a comparatively marginal share, engaging only about 6% of the workforce. In contrast, the Agra Urban Centre exhibits a pronounced dominance of cultivators, who account for nearly 25% of the working population, whereas agriculture and allied occupations represent a substantially lower share at approximately 14%. Despite these divergences, the limited participation in household industries within the Agra Urban Centre mirrors the broader district trend, indicating a similarly constrained role of this sector in the local employment landscape.

Figure 3-11: Occupational Structure in AUC and Agra district



Source: Census, 2011

Figure 3-12: Village wise Occupational Structure in terms of main and marginal workers in AUC



Source: Census, 2011

Among the 44 villages in the Agra Urban Centre, Madan Pur stands out with the highest proportion of marginal workers, accounting for 66% of its workforce. Interestingly, 80% of the population in Manda Pur is classified as non-working, which indicates a significant portion of the population is not actively engaged in the workforce. Following this trend, Ujrai has 55% of its workforce classified as marginal workers, with 68% of the total population identified as non-working. These figures suggest a higher dependence on casual or part-time labor, with a notable share of the population not participating in the workforce.

In contrast, the best-performing villages in terms of main worker population are Garhi Pirthi, Madaur, and Kheriya Khandauli, where nearly 98% of the workforce is engaged in main occupations, reflecting a highly productive workforce.

As for non-working population percentages, Baghena has the highest share, with 87% of its residents classified as non-working. These figures provide a clear view of the varying levels of economic participation across villages in the Agra Urban Centre, underscoring disparities in labor market engagement and the need for targeted interventions to promote workforce involvement, especially in villages with high non-working populations.

3.3.5 Housing Characteristics

Housing ownership is a critical variable in demographic studies, serving as an indicator of economic stability, social well-being, and regional development. Understanding patterns of housing ownership provides valuable insights into a population's living standards, cultural norms, and policy impacts. Low ownership rates may indicate poverty or unstable economic conditions in a region, prompting targeted social welfare interventions.

Table 3-5 Housing ownership in villages coming under Agra Urban Centre

Housing Ownership	Percentage of Samples
Owned	99%
Rented	1%

TOTAL	100%

Source: Primary Household Survey, 2024

A large share of the population of AUC lives in owned houses, indicating long term residence in the area as well as agrarian economy where land asset tends to be generational economic resource. Most of the houses are of pucca nature, i.e. built of permanent materials.

3.3.6 Access to basic infrastructure

Access to basic amenities like water supply, toilet facilities, and wastewater disposal plays a pivotal role in understanding and analyzing demographic trends. These factors serve as essential indicators of public health, socio-economic development, and the overall quality of life in a population.

Table 3-6 Availability of sanitation facilities in villages coming under Agra Urban Centre

Use of toilet	Percentage of Samples
Open Defecation	2.5%
Community Toilet	0.2%
Individual Toilet	97.2%

Source: Primary Household Survey, 2024

About 76% of the respondents have reported to having toilet facilities within premises. There is a small percentage of population resorting to open defecation.

Table 3-7 Coverage of drinking water in villages coming under Agra Urban Centre

Availability of drinking water	Percentage of Samples
Yes	100%
No	0%
TOTAL	**100%**

Source: Primary Household Survey, 2024

Majority of the respondents have reported having access to drinking water. However, the quality of the same is perceived to be poor by a major segment of the respondents.

Table 3-8 Mode of wastewater disposal in villages coming under Agra Urban Centre

Mode of wastewater disposal	Percentage of Samples
Open Drain	8.3%
Septic Tank	91.7%
TOTAL	**100.0%**

Source: Primary Household Survey, 2024

4. INFRASTRUCTURE PROFILE

This chapter documents the existing infrastructure profile of Agra Urban centre and its vicinity. Where a particular type of infrastructure is not available in Agra Urban Centre, infrastructure profile for Agra city has been documented which may be considered for expansion at proposal stage.

4.1. Physical Infrastructure

4.1.1. Water Supply

4.1.1.1. SOURCE OF WATER SUPPLY

In the villages of Agra Urban Centre, water is pumped from bore wells to overhead tanks for household supply by gravity. Water in Agra is supplied mainly from three sources: **bore wells, Lower Ganga Canal, and Yamuna River**. Agra city has three Water Treatment Plants (WTP) to meet supply needs. Currently, there is no WTP in AUC.

Table 4-1 Details of the Water Treatment Plants (WTP) in Agra

S. No.	Water Treatment plant Location	Capacity
1	Water Works, Civil Lines	225 MLD
2	Sikandra	2 x 144 MLD
3	Poiya	55 MLD (Proposed)

Source: Jal Nigam Agra

4.1.1.2. EXISTING WATER SUPPLY SITUATION

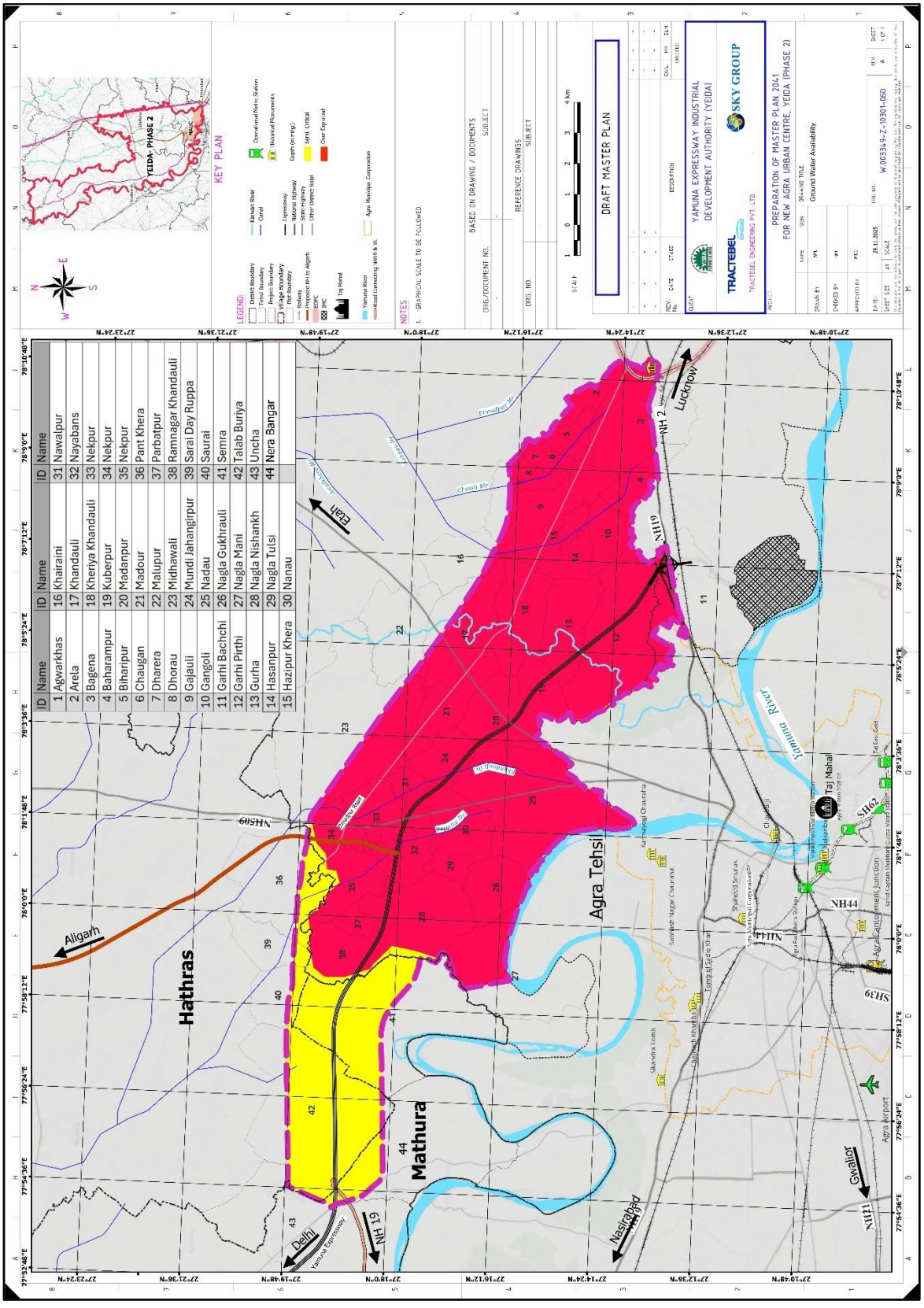
As per data collected and analyzed from Central ground water Board (CGWB) report 2018, groundwater in the Agra Urban Centre is already **overexploited**, and no further extraction is possible.

Table 4-2 Water Level at Block Level

S. No.	Block	Pre-monsoon Water Level	Post Monsoon Water Level
1	Etmadpur	23.68 - 37.22 m	23.70 - 36.10 m
2	Khandauli	26.25 – 46.03	15.18 – 44.70

Source: CGWB, 2018 Report

Figure 4-1: Ground water Availability & Extraction



ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
2	Arela	17	Khandauli	32	Nayabans
3	Bagena	18	Kheriya Khandauli	33	Nekpur
4	Baharampur	19	Kuberpur	34	Nekpur
5	Bharipur	20	Madanpur	35	Nekpur
6	Chaugan	21	Madour	36	Pant Khera
7	Dharera	22	Malupur	37	Parbatpur
8	Dhorau	23	Midhawali	38	Ramnagar Khandauli
9	Gajauli	24	Mundi Jahangirpur	39	Sarai Day Ruppa
10	Gangoli	25	Nadau	40	Saurai
11	Garhi Bachchi	26	Nagla Gukhrauli	41	Semra
12	Garhi Pirthi	27	Nagla Mani	42	Talab Buriya
13	Gurha	28	Nagla Nishankh	43	Uncha
14	Hasanpur	29	Nagla Tulsi	44	Nera Bangar
15	Hazipur Khera	30	Nanau		

Source: CGWB, 2018 Report

4.1.2. Sewerage and Sanitation

4.1.2.1. SEWERAGE NETWORK

The villages in the Agra Urban Centre do not have proper sewage infrastructure or collection system. Although, majority of houses have access to individual septic tanks and a very few households' wastewater is disposed through open drains, as revealed from the primary survey, 2024.

Agra City's sewage treatment is managed by Yamuna Pollution Control Board. Currently, the sewage waste treatment for Agra city is carried out at the following sewage treatment plants, with capacities listed below. Noteworthily, STP provision has to be made separately for AUC.

Table 4-3 STP locations and their capacity in Agra City

S.No.	STP Location	Capacity
1	Jaganpur	14 MLD Existing, 31 MLD Proposed
2	Peelakhar	10 MLD Existing, 35 MLD Proposed
3	Dhandhupura	78 MLD Existing, 100 MLD Proposed
4	Poiya (DSTP)	0.25 MLD

Source: Yamuna Pollution Control Board

4.1.3. Drainage

There is absence of a well laid out covered drainage network in AUC area. As far as natural drainage is concerned, Agra Urban Centre, bordered by the Yamuna River and crossed by the Karwan River, drains stormwater naturally into these rivers with no retention ponds. Annual rainfall over the past 30 years ranges from 244 mm to 985 mm, as per Disaster Management data. Low drainage density combined with low percolation rates in several areas within AUC cause flooding during monsoon.This indicates the need to efficiently channelise the run-off so as to serve the dual purpose of managing the surface runoff, preventing logging as well as to utilize the water for ground water recharge and usage in dry months.

4.1.4. Solid Waste Management

As per the definition provided by the Municipal Solid Waste (Management and Handling) Rules, 2016 of Government of India, municipal solid waste (MSW) includes commercial and residential wastes generated in municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes.

The existing solid waste management in the villages falling under the proposed **Agra Urban Centre** is currently undergoing a significant transition from traditional, unorganized disposal methods to structured systems under the **Swachh Bharat Mission (Grameen) Phase-II**. Historically, these rural and peri-urban areas have lacked formal collection mechanisms, with waste often disposed of in open fields, low-lying vacant plots, or near water bodies, leading to "Garbage Vulnerable Points" (GVPs). However, as these villages are integrated into the broader urban planning framework, the focus has shifted toward making them **ODF Plus**, which entails establishing functional systems for waste segregation and processing. Key infrastructure currently being deployed includes:

- **Source Segregation:** Implementation of door-to-door collection using containerized e-carts or rickshaw trolleys, emphasizing the separation of biodegradable (organic) and non-biodegradable waste.

- **Processing Infrastructure:** Construction of village-level **Compost Pits** for organic waste and **Waste Segregation Sheds** (Material Recovery Facilities) to manage dry waste and recyclables.

Despite these advancements, challenges remain at ground level implementation.

4.1.4.1. WASTE GENERATION ESTIMATION

Total Residential population for the YEIDA Phase 2 Township is approximately 1,650,000 and working population has been worked out as 822,600 based on URIDPFI Norms and other studies/ guidelines. Municipal solid waste is estimated by accounting the ultimate project year – 30 years plan perspective. Per capita generation in Agra town is 480 gm per day for assessing waste generation. Total Estimated Generation is 1028 Tons per day.

Bio- degradable waste is mainly consider Food waste which is organic. By assessing Municipality waste composition biodegradable waste is 70% But this waste contains Waste to Energy producing biodegradable waste like board, paper wood which is dry bio-degradable waste and high calorific value. Here biodegradable waste is further sub divided into dry and wet waste. Total wet biodegradable food waste will be 50% and rest 15 % dry waste. Total food waste for composting process will be 441.11 tons per day, 136 tons for dry biodegradable waste for energy generation. Plastic waste will be 90.69 tons per day but 50% can be saleable, so, 45.39 tons which will be used as plastic cube by compactor to recycle use as fuel for industry, Metal shall be 181.36 tons which will again as raw material for industry. Only 57.69 tons will be disposed at Sanitary landfill.

4.1.5. Power Supply

The power transmission network in Agra includes one 765 kV, two 400 kV, three 220 kV, and seventeen 132/33 kV substations. The 765 kV Fatehabad substation interlinks with the 400 kV, 220 kV, and 132 kV networks across the city. Power is supplied through 400/220 kV, 220/132/33 kV, and 132/33 kV substations feeding all distribution substations in Agra.

Table 4-4 Existing EHV Substation in and near AUC

Sl No	EHV Substation Name	Voltage Ratio	Capacity MVA	Total MVA
1.	765KV S/S Fatehabad, Agra	765/400 kV	500x2+ 240	1240
2.	400KV S/S Agra South	400/132 KV	3x200	600
3.	**400KV S/S Agra, Poyiya**	**400/220,220/132**	**2x500+1x315, 3x160**	**1795**
4.	220KV S/S Sikandra,Agra	220/132, 220/33 132/33	2x160+1x100 2x60 2x63	666
5.	220KV S/S Shamshabad Road,Agra	220/132, 132/33	2x160 2x63	446
6.	220KV S/S Bah,Agra	220/132 , 132/33	2x160 1x40+1x20	380
7.	32KV S/S Etmadpur	132/33	2x63	126
8.	132KV S/S Agra(Cantt.)	132/33	2x63	126
9.	132KV S/S Agra(Taj)	132/33	1x63+2x40	103
10.	132KV S/S Barhan	132/33	2x63	126
11.	132KV S/S Bodla	132/33	2x63+1x40	166
12.	132KV S/S Kirawali	132/33	2x40	80

13.	132KV S/S Dayalbagh	132/33	1x63+1x40	123
14.	132KV S/S Fatehabad	132/33	1x63+1x40	123
15.	132KV S/S Gwalior Road, Agra	132/33	2x40	80
16.	132KV S/S Pinhat	132/33	1x40+1x20	60
17.	132KV S/S Bichpuri	132/33	2x40	80
18.	132KV S/S Shamshabad	132/33	2x40	80
19.	132KV S/S Kheragarh	132/33	2x40	80
20.	132KV S/S Fatehpur Sikari	132/33	1x40	40
21.	**132/33 kV Talab Buriya(Planned)**	**132/33**	**2x63**	**126**
22.	**132/33 kV s/s Barhampur(Planned)**	**132/33**	**2x40**	**80**
23.	**132/33 kV Dayal Bagh**	**132/33**	**2x40**	**80**

Source: UPPTCL

The Power Transformer capacity is shown as below of respective EHV and Distribution substations

Table 4-5 Power Transformer Capacity of Substations

Sl.No.	Name Of Primary Sub-Station	Name Of Secondary Sub-Stations	Name Of Block	Voltage Ratio(KV)	Capacity(MVA)	Date Of Commissioning
1	**132 KV Etmadpur**	**Etmadpur**	**Etmadpur**	**33/11**	**3+5+8**	**31.1.74 &2005**
2	**----Do----**	**Barhan**	**Etmadpur**	**33/11**	**5+8**	**31.1.74 & 10/95**
3	**----Do----**	**Kuberpur**	**Etmadpur**	**33/11**	**3+5**	**31.3.98**
4	----Do----	Dhirpura	Etmadpur	33/11	2*5	20.12.07
5	132 KV Taj	Kagarol	Kagarol	33/11	2*5	23.12.71
6	----Do----	Jagner	Jagner	33/11	1*5	11.2.98 &12/06
7	----Do----	Saiyan	Saiyan	33/11	3+5	7.99 &11/06
8		Akola		33/11	3+5	8/99 &11/06
9		Majhara		33/11	1*3	Apr-01
10		Runkata		33/11	1*5	31.3.03
11		Jaingara		33/11	1*5	8.10.05
12		Bad		33/11	1*5	1.9.05
13		Papri Nagar		33/11	2*5	1-Dec

Source: UPPTCL

4.2. Social Infrastucture

Social infrastructure is a system of physical facilities that provides services such as education, health, and public services for a community. It's essential for sustainable community development and a better standard of living for citizens

4.2.1. Education

Uttar Pradesh (UP) has a well-established school education system. The state follows a structured hierarchy designed to cater to the educational needs of its diverse population. The education system in UP is managed by the **Basic Shiksha Parishad** (Board of Basic Education) for primary and upper primary levels, and the **Uttar Pradesh Madhyamik Shiksha Parishad** (UPMSP) for secondary and senior secondary levels.

Educational facilities of higher order like colleges, technical institutions and universities and institutions of specialised functions (schools for the physically/ mentally challenged) are not available in the AUC. For such educational needs the AUC is currently dependent on Agra City. Agra City serves as the primary educational hub of the region and offers a wide range of specialised institutions, including Dr. Bhim Rao Ambedkar University (Agra University), Dayalbagh Educational Institution, several degree colleges, engineering and medical colleges, Industrial Training Institutes (ITIs), and other vocational institutions catering to sectors such as hospitality, tourism, catering, and handicrafts, which are integral to Agra's economy.

However, considering that the population of Agra City and its urban agglomeration has already crossed 25 lakh in 2024, the existing educational infrastructure may not be adequate to cater to the additional demand arising from the induced population growth in the AUC. This underscores the need for planned provision of higher-order and specialised educational institutions within AUC to ensure balanced regional development, reduce dependency on Agra City, and support the emerging economic activities proposed in the urban centre.

A benchmarking exercise of educational facilities within the project area has been carried out in accordance with the Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines. This assessment involved a detailed analysis of the existing number, type, and distribution of educational institutions, including primary, secondary, and higher education facilities, compared against the norms and standards prescribed by URDPFI for urban areas.

Table 4-6 Benchmarking of the educational facilities in AUC

Education Facilities					
A. Pre-primary to Secondary Education					
Sl	**Category**	**Population 2024 (Agra Urban Centre villages)**	**Total Area under facility required as per URDPFI guidelines (Ha)**	**No of Units Required as per URDPFI guidelines**	**No of Units Available within the planning area**
1	**Pre Primary, Nursery School**	1,88,861	6.0	76	
2	**Primary School (class I to V)**	1,88,861	15.1	38	63
3	**Senior Secondary School (VI to XII)**	1,88,861	45.3	25	17
4	**Integrated School without hostel facility (Class I-XII)**	1,88,861	6.6	2	NA
5	**Integrated School with hostel facility (Class I-XII)**	1,88,861	7.4	2	NA
6	**School for Physically Challenged**	1,88,861	2.9	4	NA

7	**School for Mentally Challenged**	1,88,861	0.0	0	NA
B. Higher Education					
Sl	**Category**	**Population 2024 (Agra Urban Centre villages)**	**Area Requirement**	**No of Units Required**	**No of Units Available within the planning area**
1	**College**	188861	5.0	1	NA

Source: Consultant Analysis based on URDPFI Guidelines

4.2.2. Health

Government-run health centers form the backbone of healthcare system in AUC, supported by initiatives like the National Health Mission (NHM), which ensure affordable and accessible care. Private clinics and pharmacies supplement these services, providing additional options for outpatient care. While significant progress has been made in expanding healthcare services, challenges like limited specialist availability and infrastructure gaps persist, emphasizing the need for continued investment and development to ensure comprehensive healthcare access for all residents.At present, the healthcare infrastructure within the Agra Urban Centre (AUC) is inadequate, with most higher-order and specialised medical facilities not available within the area. As a result, residents of AUC are largely dependent on Agra City and, for advanced tertiary care, the Delhi NCR region to meet their healthcare needs.

Agra City presently accommodates key medical facilities, including the District Hospital, a medical college with an attached teaching hospital, and several private hospitals and clinics providing secondary and limited tertiary healthcare services. However, for most tertiary and super-specialty medical services, AUC continues to rely on facilities located in Agra City.

With the projected population growth in AUC, the existing healthcare infrastructure in Agra is likely to experience increased pressure, potentially leading to capacity constraints and accessibility challenges. This underscores the necessity for planned provision of secondary and tertiary healthcare facilities within AUC as part of a comprehensive, long-term urban development strategy, aimed at ensuring equitable access to healthcare services and reducing regional dependency.

A benchmarking of healthcare facilities in the project area has been carried out in accordance with the Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines. This assessment included a review of the existing healthcare infrastructure, covering primary health centers, community health centers, clinics, and hospitals, and their alignment with the population-based norms and spatial distribution standards prescribed under URDPFI.

The analysis indicates that the current number and capacity of healthcare facilities are significantly inadequate to meet both the existing and projected demand of the area. Critical gaps have been identified, particularly in primary and secondary healthcare services, and there is a notable lack of accessibility for residents in several parts of the

project area. Given these deficiencies, major investment and strategic planning are required to increase the number and quality of healthcare facilities.

Table 4-7 Benchmarking of healthcare facilities in the project area

Category	Population 2024 (Agra Urban Centre villages)	Total Area under facility required as per URDPFI guidelines	No of Units Required as per URDPFI guidelines	No of Units Available within the planning area
Dispensary	188861	1.5	13	1
Nursing home, child welfare and maternity centre	188861	0.3	2	3
Polyclinic	188861	0.3	2	NA
Intermediate Hospital (Category B)	188861	1.9	2	NA
Intermediate Hospital (Category A)	188861	7.0	2	NA
Multi-Speciality Hospital (NBC)	188861	17.0	2	NA
Speciality Hospital (NBC)	188861	7.0	2	NA
General Hospital (NBC)	188861	4.5	-	NA
Family Welfare Centre	188861	0.3	4	NA
Diagnostic centre	188861	0.3	4	NA
Veterinary Hospital for pets and animals	188861	0.1	-	NA
Dispensary for pet animals and birds	188861	0.1	2	NA

Source: Consultant Analysis based on URDPFI Guidelines

4.2.3. Security

Agra Zone has 47 police stations, of which only one police station at Khandauli comes under New Agra Urban Centre Area. Police Station Etmadpur is abutting the New Agra Urban Centre Area in the East and Police Station Trans-Yamuna in the South.

4.2.4. Recreational & Green Spaces

Recreational spaces play a vital role in the planning and development of urban centres, especially those that incorporate or are surrounded by small local village pockets. These spaces enhance the quality of life, promote social integration, and contribute to environmental sustainability while supporting the unique socio-cultural dynamics of the area.

Recreational spaces such as parks, playgrounds, and community gardens provide essential areas for relaxation, physical activity, and leisure. The area under the Agra Urban Centre at present does not possess significant organised open spaces. The colleges and schools in the planning area do have private grounds and gathering spaces.

About half of the villages in Agra Urban Centre have access to a community centre, sports ground and recreation centre. A handful of villages also have a cinema hall and a public library.

Outside the southern end of the proposed Agra Urban centre, a historical structure called Bodhi Tal exists that is a local attraction having a natural open garden.

The benchmarking analysis indicates that while some open spaces and parks are available within the project area, they are often limited in size, unevenly distributed, and lack adequate infrastructure and maintenance.

Table 4-8 benchmarking of recreational spaces in the project area

Type of Facility	Population Norm (as per URDPFI Guidelines, 2014)	Remarks/Details	Facilities available within project area
Recreational and Open Spaces			
Neighbourhood Park	1 per 10,000	Accessible open green space	Available in some villages
Playgrounds	1 per 5,000	Sports and recreation for all age groups	Available in some villages
City Park / District Park	1 per 1,00,000	Larger recreational areas	Not Available

Source: Consultant Analysis

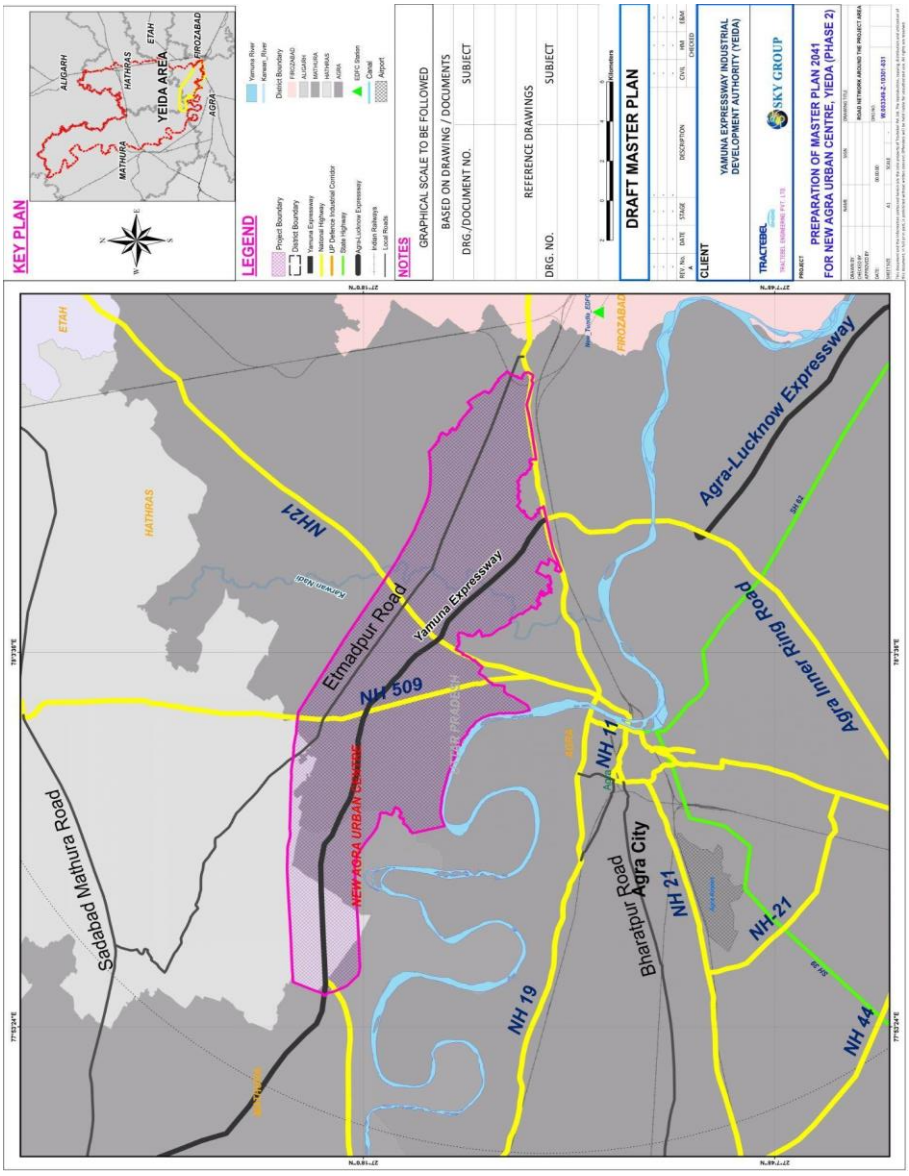
Based on the assessment, it is concluded that **additional and more organized parks and open spaces are required** to meet the recreational and environmental needs of the growing population. The provision of **well-planned, accessible, and properly equipped parks** is essential to ensure quality of life, promote public health, and enhance the urban environment. This includes developing **neighbourhood-level parks, community playgrounds, and larger city-level recreational spaces**, along with ensuring proper maintenance and public access.

5. TRANSPORTATION PROFILE

5.1. Road Network around Agra Urban Centre

The major traffic movement in the Agra Urban Centre and mostly of regional character as the area is largely greenfield in nature. The Yamuna Expressway is one of the major arterial roads passing through the Agra Centre, the National Highway 509, National Highway 21, National Highway 19 also provide connectivity to the Agra urban Centre. The Etmadpur Road is a local road, which connects Khandauli to Etmadpur. Besides these main roads, there are local village roads which are present in the planning area.

Figure 5-1 Road Network in and around Agra Urban Centre



Source: Consultant

5.2. Traffic Characteristics

The current and future travel demand for the Agra Urban Centre has been assessed based on the impacts of land-use configurations on the transport system and provides recommendations for infrastructure planning and policy formulation. Given the city's large spatial extent and mixed-use character—encompassing residential, industrial, and commercial zones—integrating land use with transport planning is critical for ensuring efficient mobility and sustainable growth.

The analysis utilizes a land-use based transport model structured around the traditional four-step framework- Trip Generation, Trip Distribution, Mode Choice, Route Assignment

A gravity model is employed to allocate trips between origins and destinations. The model assumes that the number of trips is directly proportional to the level of activity at both ends and inversely related to the travel time between them.

A volume and capacity analysis of the roads in the Agra urban Centre has been performed using the traffic volume count and the design standards provided by the Indian Road Congress (IRC). The design capacities of the various roads have been considered as per the IRC and compared with peak volume of vehicles observed on these roads. The Yamuna Expressway which is planned for a period of 30 years is presently running at V/C ratio of 0.47, which indicates a free flow nature of traffic movement on the road.

The national Highway 509, which shows a majorly regional character shows a V/C ratio of 0.7 which indicates an average service level. The National Highways, 21 and 19 have appeared as an urban-peri urban connector and have very high traffic volume on them. The volume is almost like the design capacity on these roads. The Etmadpur Road is a collector road with a two-lane capacity and has a relatively high volume. The road depicts a slow movement of traffic going by the high V/C ratio of .88.

Figure 5-2 Volume and capacity analysis in the roads in Agra Urban Centre

Sl	Road Name	Traffic Volume Count				Average PCU	No of lanes	Design capacity *	V/C ratio (based on peak PCU)	V/C ratio (based on average PCU)	Level of Service * (based on average PCU)
		Count Duration (6AM to 10 PM)		Peak Hour							
		Vehicles	PCUs	Vehicles	PCUs						
1	Yamuna Expressway	30674	32624	2750	2832	2039	6 lanes divided	6000	0.5	0.3	B
2	NH-509	21840	25520	2329	2810	1595	3 lanes undivided	2500	1.1	0.6	C
3	NH-21	22437	15508	2409	1599	969	2 lanes undivided	1500	1.1	0.6	C

4	NH-19	64316	76583	4430	5213	4786	6 lanes + 2 lanes service road on each side	6000+1200+1200	0.6	0.6	C
5	Etmadpur Road	21500	14209	1598	1056	888	2 lanes undivided	1500	0.7	0.6	C

Source: Primary Traffic Volume Count, 2024

5.3. Key Inferences

The Agra urban Centre enjoys excellent connectivity and would further position beneficially with the upcoming investments in Transport infrastructure.

1. The Agra urban Centre is located about 120 km from the Noida international airport, high speed rail connectivity between the airport and the Agra Centre for passenger traffic would be beneficial for both industrial and tourism purposes as it would, decrease the distance from between NCR and Agra.
2. Dedicated cargo line or freight line between Agra and Noida international airport via Raya Urban Centre and Tappal Bajna Urban Centre would also be desirable for faster handling of traffic without creating excess pressure and congestion on the Yamuna Expressway.
3. The eastern dedicated freight corridor has created a terminal at Tundla Junction, which is the closest terminal of the EDFC to the Agra urban centre. A dedicated Railway siding into the Agra urban Centre would also be beneficial in terms of faster dispatch of cargo via the ESFC from Agra Urban Centre.
4. The Indian Railways Freight Services encourage private investment into creating multimodal freight terminals under the Gati Shakti scheme. Similar approach can be adopted in Agra to create an integrated rail-road-air freight terminal to assimilate the cargo routes of railway and the Noida international airport.

6. ENVIRONMENT PROFILE

6.1. Existing Features

Climate: YEIDA Phase II area's annual rainfall is 650 mm, with high humidity and moderate temperatures around 30-32°C. Winters (November to February) are mild and dry, with daytime temperatures averaging 20-28°C and night-time lows of 8-14°C in January, often with foggy mornings. These seasonal variations significantly shape Agra AUC agriculture and tourism, with winters being the most favourable period for visitors.

Between the driest and wettest months, the difference in precipitation is 225 mm | 9 inch. The fluctuation of temperatures across the seasons is referred to as 19.3 °C | 34.8 °F. The month that sees the most relative humidity is August (28.68 %). The month with the lowest amount of relative humidity is April (28.68 %). The month with the highest amount of rainfall is July (20.60 days), whereas the one with the lowest precipitation level is December (0.87).

Table 6-1 Data: 1991 - 2021 Min. Temperature °C (°F), Max. Temperature °C (°F), Precipitation / Rainfall mm (in), Humidity, Rainy days

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	14.1 °C (57.5) °F	17.8 °C (64.1) °F	23.7 °C (74.6) °F	29.9 °C (85.8) °F	33.4 °C (92.1) °F	33.5 °C (92.3) °F	29.9 °C (85.9) °F	28.6 °C (83.5) °F	28.2 °C (82.7) °F	26.1 °C (78.9) °F	21.2 °C (70.2) °F	15.9 °C (60.7) °F
Min. Temperature (°C)	8 °C (46.4) °F	11.1 °C (52) °F	16 °C (60.8) °F	21.7 °C (71) °F	26.2 °C (79.1) °F	28.4 °C (83.1) °F	26.9 °C (80.4) °F	25.9 °C (78.6) °F	24.4 °C (76) °F	19.8 °C (67.6) °F	14.7 °C (58.5) °F	9.6 °C (49.3) °F
Max. Temperature (°C)	20.6 °C (69.1) °F	24.6 °C (76.3) °F	31.2 °C (88.2) °F	37.7 °C (99.8) °F	40.2 °C (104.4) °F	38.6 °C (101.6) °F	33.5 °C (92.3) °F	32 °C (89.6) °F	32.5 °C (90.4) °F	32.5 °C (90.5) °F	28 °C (82.5) °F	22.7 °C (72.8) °F
Precipitation / Rainfall mm	15 (0)	21 (0)	12 (0)	8 (0)	12 (0)	78 (3)	225 (8)	231 (9)	108 (4)	22 (0)	6 (0)	8 (0)

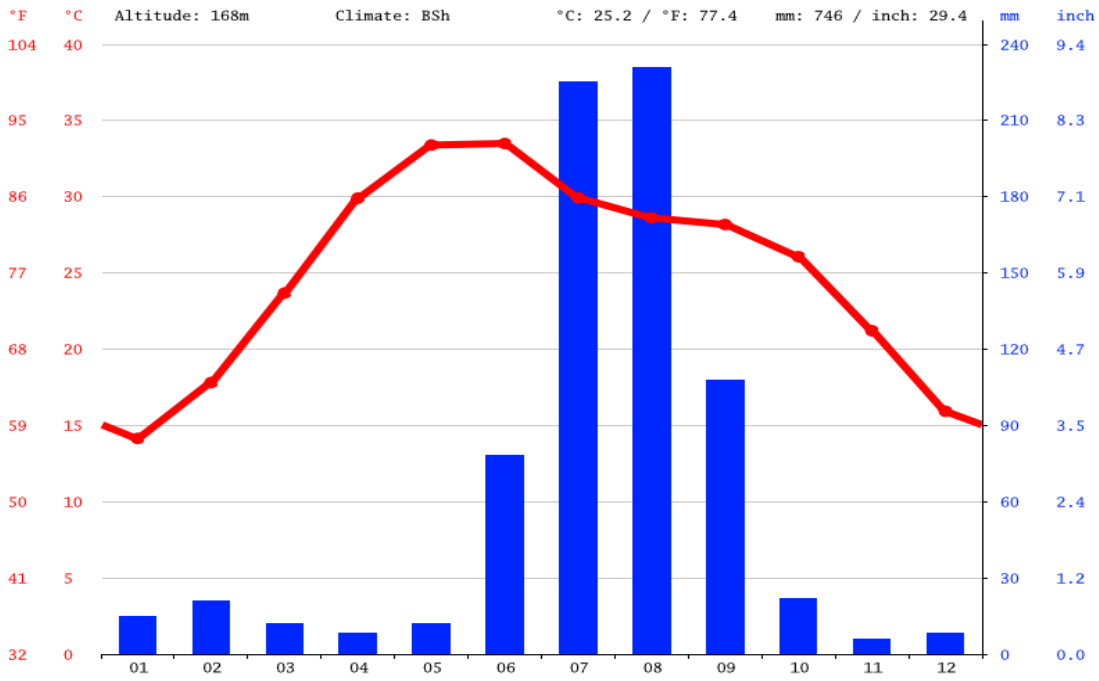
Source: Climate-Data.org

Last 50 years temperature variation is 4 to 8°C. Agra city is facing rising mean temperature, heat waves, and flooding along river Yamuna. It shows a stronger trend of warming than surrounding cities and districts like New Delhi, Jhansi, Bharatpur, Jaipur and Ajmer; temperature is increasing at 0.18°C/decade annually. Increased surface temperature causes 'urban heat islands' which results in heat stress, heat stroke, heat exhaustion, heat syncope and cramps (ref Mishra, Prabhat, Red tape Foundation).

Rainfall: Agra UC experiences moderate to high rainfall, predominantly during the monsoon season from June to September. The city receives minimal rainfall during the pre-monsoon months (January to May), with precipitation ranging between 6 mm to 21 mm. However, June marks the start of the monsoon season, with significant rainfall occurring in July and August, reaching around 225 mm and 231 mm, respectively. The total rainfall in the monsoon months accounts for the bulk of the annual precipitation, which is around 650 mm. By September, rainfall decreases to about 108 mm, and October and November experience much drier conditions, with rainfall dropping to just 22 mm and 6 mm.

This pattern reflects Agra's seasonal climate, where the monsoon is the wettest period of the year, significantly impacting humidity and rainfall.

Figure 6-1: Average Climatic Condition of Planning area



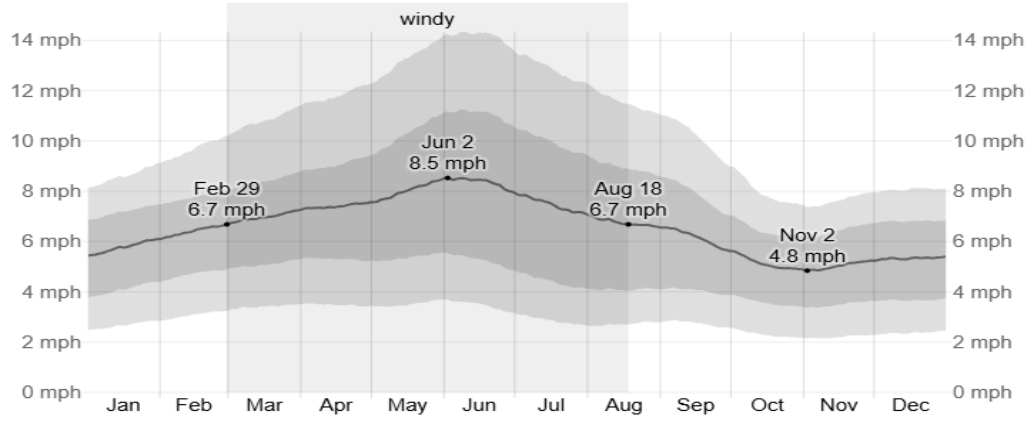
Source: Climate-Data.org

Last 50 years data base shows the erratic nature of rainfall. The variation of the rainfall over years is nominal, but number of days more than 20 mm rainfall is almost nil in a year which also show the change of erratic climatic zone of the area.

Measures for addressing effects of climate change have been detailed under chapter 11 section 11.5 Environment.

Wind: Agra UC experiences significant seasonal variation in wind conditions. The windiest period lasts from February to August, with average wind speeds exceeding 6.7 miles per hour, peaking in June at 8.4 miles per hour. The calmest period is from August to February, with November being the calmest month at 5.0 miles per hour. Winds are most commonly from the west from April to July, with a peak in May. From July to August, winds shift towards the east, and from October to April, the predominant wind direction is from the north.

Figure 6-2: Average Wind Speed in Agra

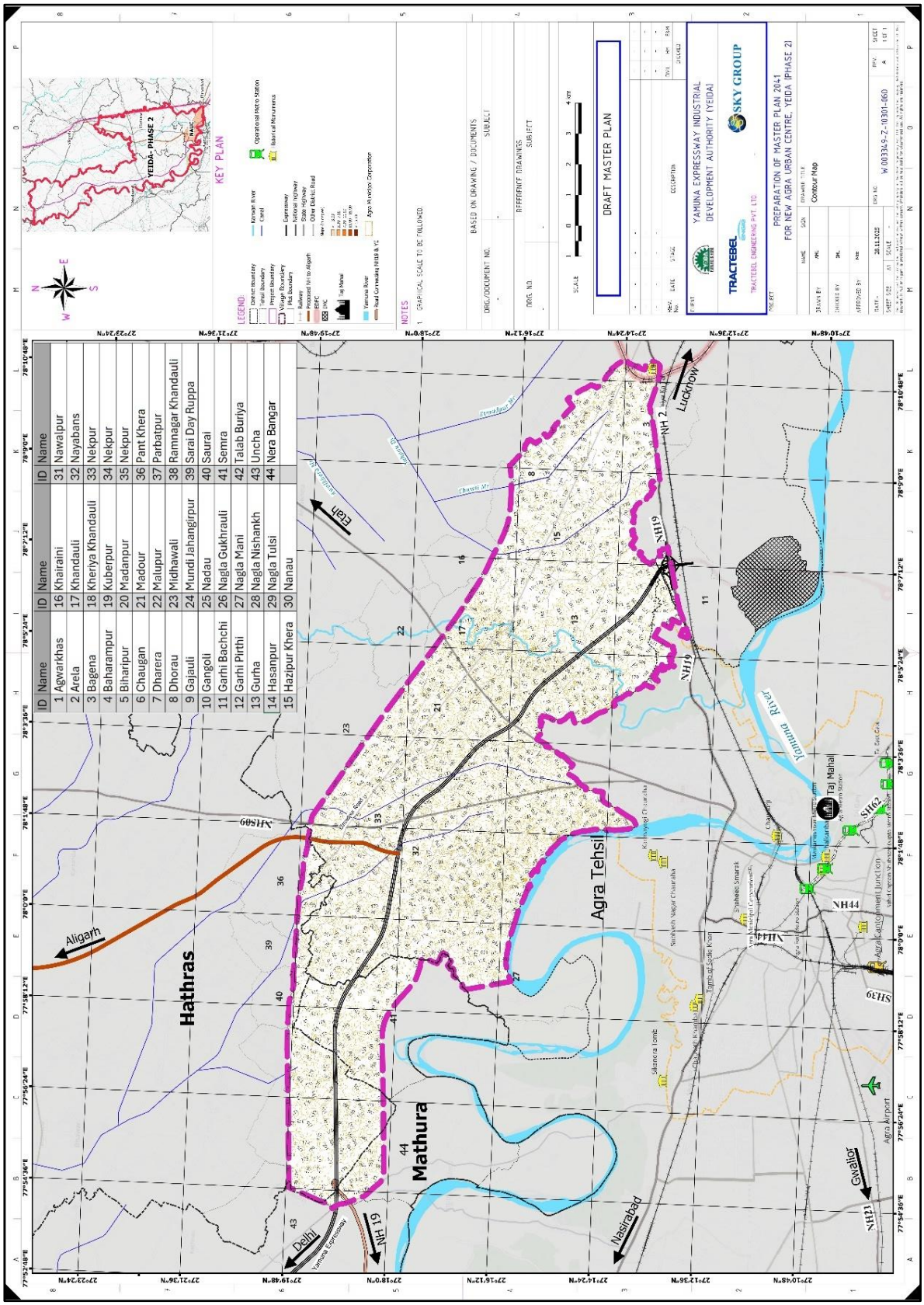


Source: Weather Spark

6.2. Geomorphology

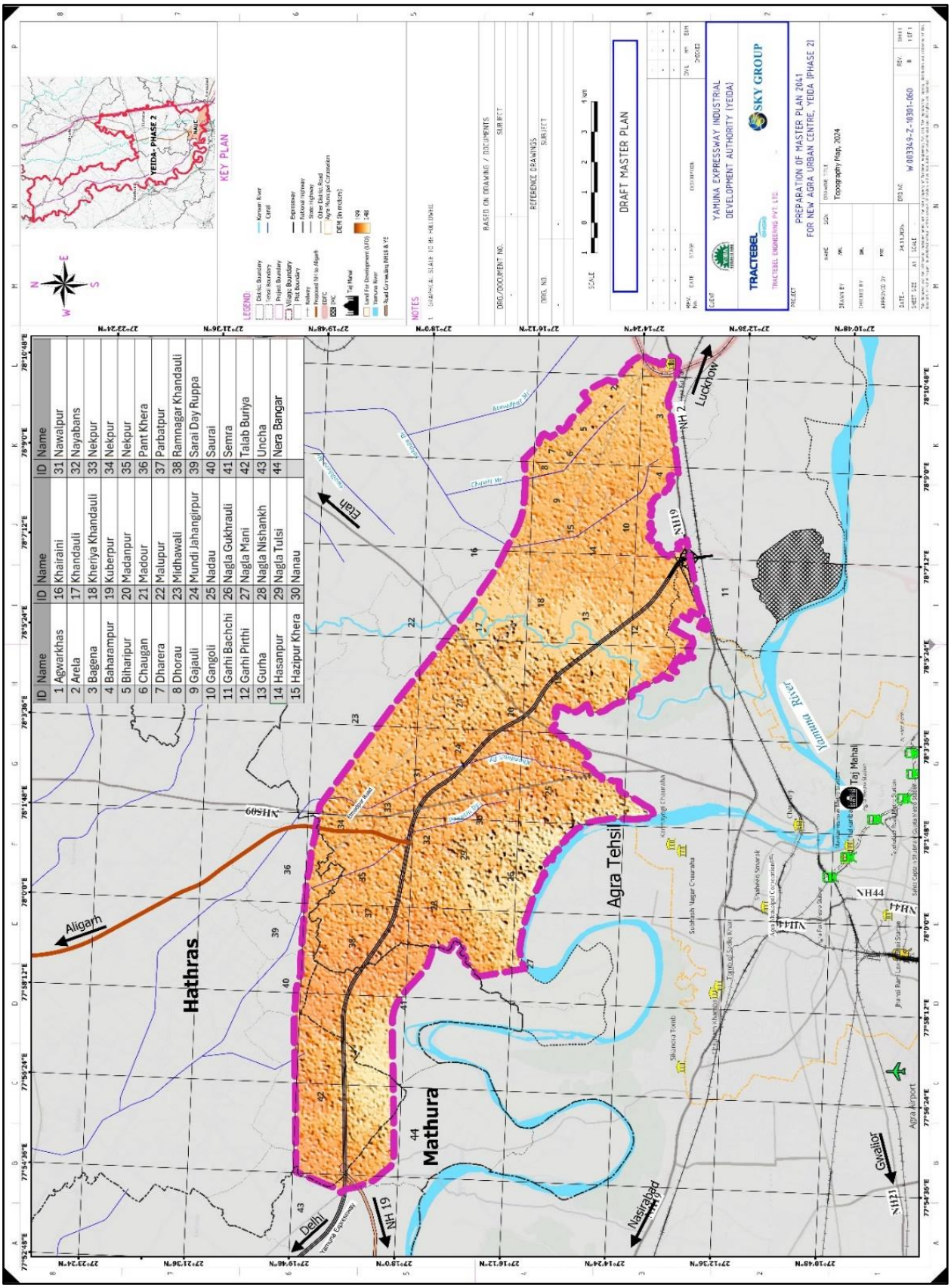
The region's elevation ranges from 120 to 190 meters above mean sea level, with a gentle slope from northwest to southeast.

Figure 6-3 Contour Map of AUC



Source: USGS, Earth Explorer (2024)

Figure 6-4: Elevation Map of AUC



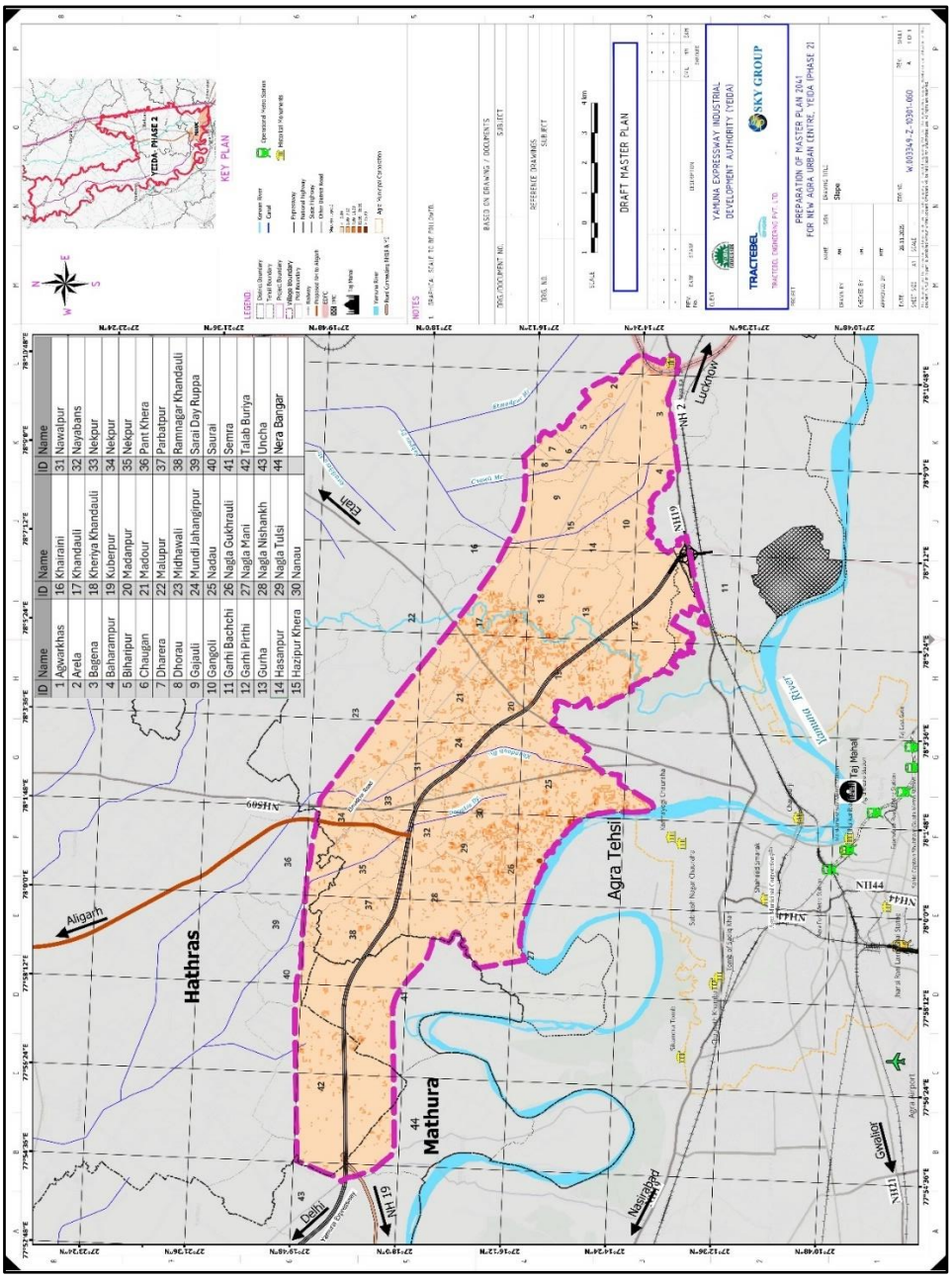
Source: USGS, Earth Explorer (2024)

The highest contour is **199 meters (mAMSL)**, which encompasses the area of **northwestern Agra, alluvial plains**. The minimum is **120 meters (mAMSL)**, which surrounds **the southeastern parts of the district, particularly near river valleys like Yamuna and Chambal**. Overall, the area is a flat land, and slope variation is also **gentle, ranging from northwest to southeast**.

The steep slopes are **localized to ravine areas, especially near the Chambal-Yamuna Doab**, and nominal at Karwa river. So, the ultimate pouring point is at Karwa river.

Slope analysis ranges: Slope of the area is varied with 5 to 20 degree which is almost flat terrain. The higher elevation as it is marked on northwest part and southeast part, so, almost all area is relatively flat terrain.

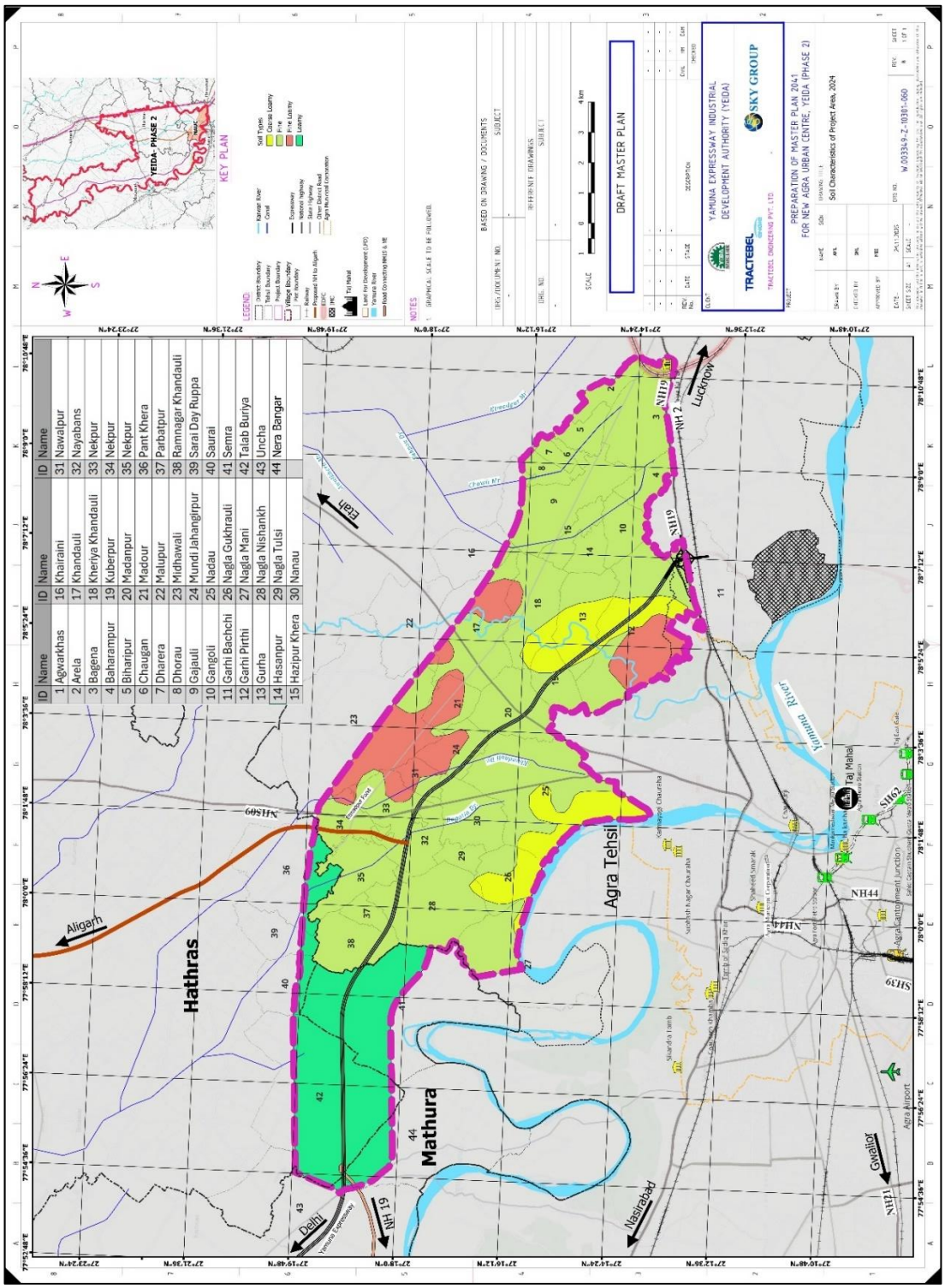
Figure 6-5 Slope Analysis of Agra Urban Centre



Source: USGS, Earth Explorer (2024)

SOIL: The soil in the Agra region including AUC contains **60-70% sand**, **15-20% clay**, and **10-15% silt and organic matter**. As per the above figure the project area falls under loamy soil where percolation rate is high. The following table shows the runoff potentiality of the block within project area. Data has been referred from available report from Central Ground Water Board Report (2018-19).

Figure 6-6: Soil Map of AUC



ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
2	Areia	17	Khandauli	32	Nayabans
3	Bagena	18	Kheriya Khandauli	33	Nekpur
4	Baharampur	19	Kuberpur	34	Nekpur
5	Biharipur	20	Madanpur	35	Nekpur
6	Chaugan	21	Madour	36	Pant Khera
7	Dharera	22	Malupur	37	Parbatpur
8	Dhorau	23	Midhawali	38	Ramnagar Khandauli
9	Gajauli	24	Mundi Jahangirpur	39	Sarai Day Ruppa
10	Gangoli	25	Nadau	40	Saural
11	Garhi Bachchi	26	Nagla Gukhrauli	41	Semra
12	Garhi Pirthi	27	Nagla Mani	42	Talab Buriya
13	Gurha	28	Nagla Nishankh	43	Uncha
14	Hasanpur	29	Nagla Tulsi	44	Nera Bangar
15	Hazipur Khera	30	Nanau		

Source: CGWB, 2018

Database shows that normal rainfall has been considered higher value than the average rainfall in project area i., e 650 mm. As a result, potentiality of run off is also high.

Table 6-2 Run off potentiality at Block level

Block	Stage of GW Development (%)	Total Geographical Area (Ham)	Area suitable / feasible for AR (Sq.Km.) (90% of total area)	Normal Rainfall (mm)	Run off factor (%)	Committed Runoff (%)	Non-Committed Runoff (%)	Potential Generated Runoff (MCM)
Khandauli	130.43	21522	19369.8	774.6	15	25	75	112.53
Etmadpur	120.71	21902	19711.8	774.6	15	25	75	114.52

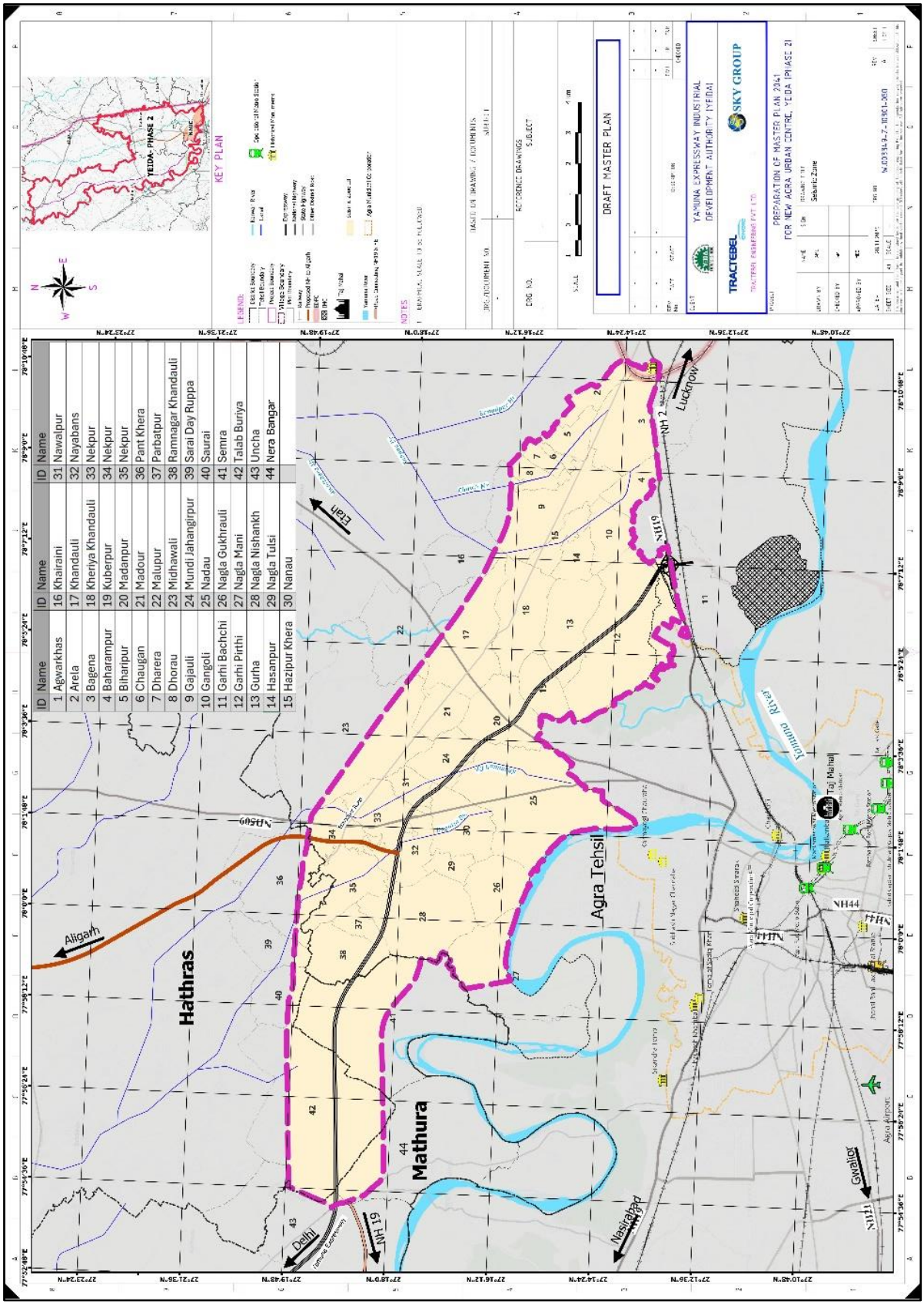
Source: CGWB (2018-19)

AS per above analysis overlay of maps shows that most favourable percolating potential area is along rivers i.e. Yamuna and Karwa river. These are falling in Madanpur (Must), Poiya and Gurha.

6.3. Geology

Agra is classified under Seismic Zone III according to the Bureau of Indian Standards (BIS), indicating a moderate risk of earthquakes. The region can experience earthquakes with magnitudes ranging from 4.5 to 6.5 on the Richter scale, with rare instances of higher magnitudes. While the city has not historically faced catastrophic earthquakes, it has felt tremors originating from larger seismic events in neighbouring areas. The loose alluvial soil in the region increases susceptibility to liquefaction, which can amplify the effects of earthquakes and cause significant structural damage.

Figure 6-7 Seismic Map of AUC



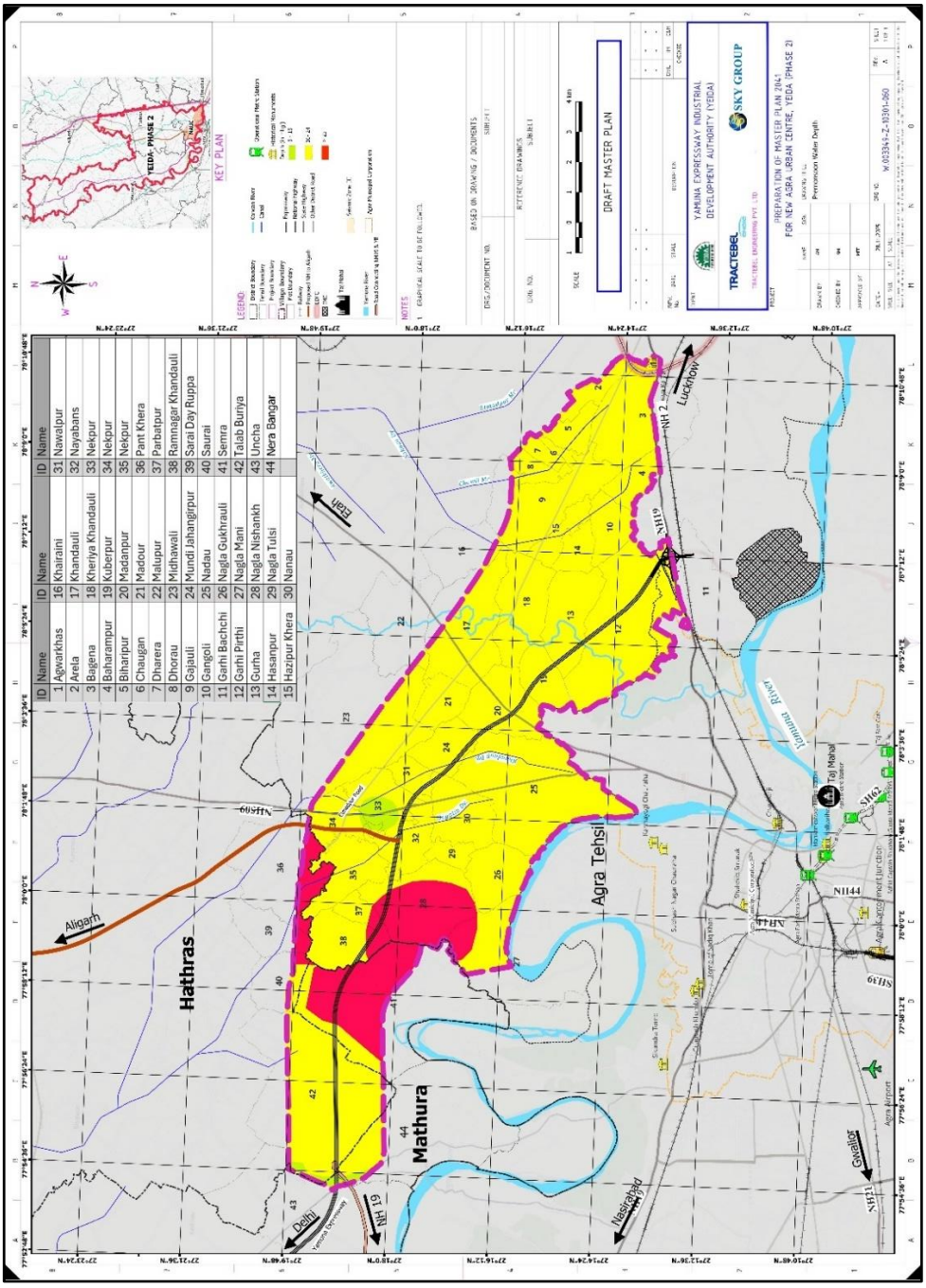
ID	Name	ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur	44	Nera Bangar
2	Arela	17	Khandauli	32	Nayabans		
3	Bagena	18	Kheriya Khandauli	33	Nekpur		
4	Baharampur	19	Kuberpur	34	Nekpur		
5	Biharipur	20	Madanpur	35	Nekpur		
6	Chaugan	21	Madour	36	Pant Khera		
7	Dharera	22	Malupur	37	Parbatpur		
8	Dhorau	23	Midhawali	38	Ramnagar Khandauli		
9	Gajauli	24	Mundi Jahangirpur	39	Sarai Day Ruppa		
10	Gangoli	25	Nadau	40	Saurai		
11	Garhi Bachchi	26	Nagla Gukhrauli	41	Semra		
12	Garhi Pirthi	27	Nagla Mani	42	Talab Buriya		
13	Gurha	28	Nagla Nishankh	43	Uncha		
14	Hasampur	29	Nagla Tulsi	44	Nera Bangar		
15	Hazipur Khera	30	Nanau				

Source: National Centre for Seismology, 2025

6.4. Groundwater

During the pre-monsoon period, the depth to water level in the shallow or phreatic aquifers of the district ranges from 5.40 to 53.62 meters below ground level (mbgl). The water level is relatively shallow (0 to 10 mbgl) in areas such as Fatehpur Sikri, Achnera, Akola, and Jagner, which are in the western and southern parts of the district. On the other hand, the deepest water levels, ranging from 40 to over 50 mbgl, are found in the southeastern areas, particularly in the doab region formed by the Yamuna-Chambal and Gambhiri-Khari River tributaries. This includes blocks such as Shamsabad, Fatehabad, Pinhat, Bah, Jaitpur Kalan, and Saiyan.

Figure 6-8 Depth to Water Level Map of AUC, Pre Monsoon-2018

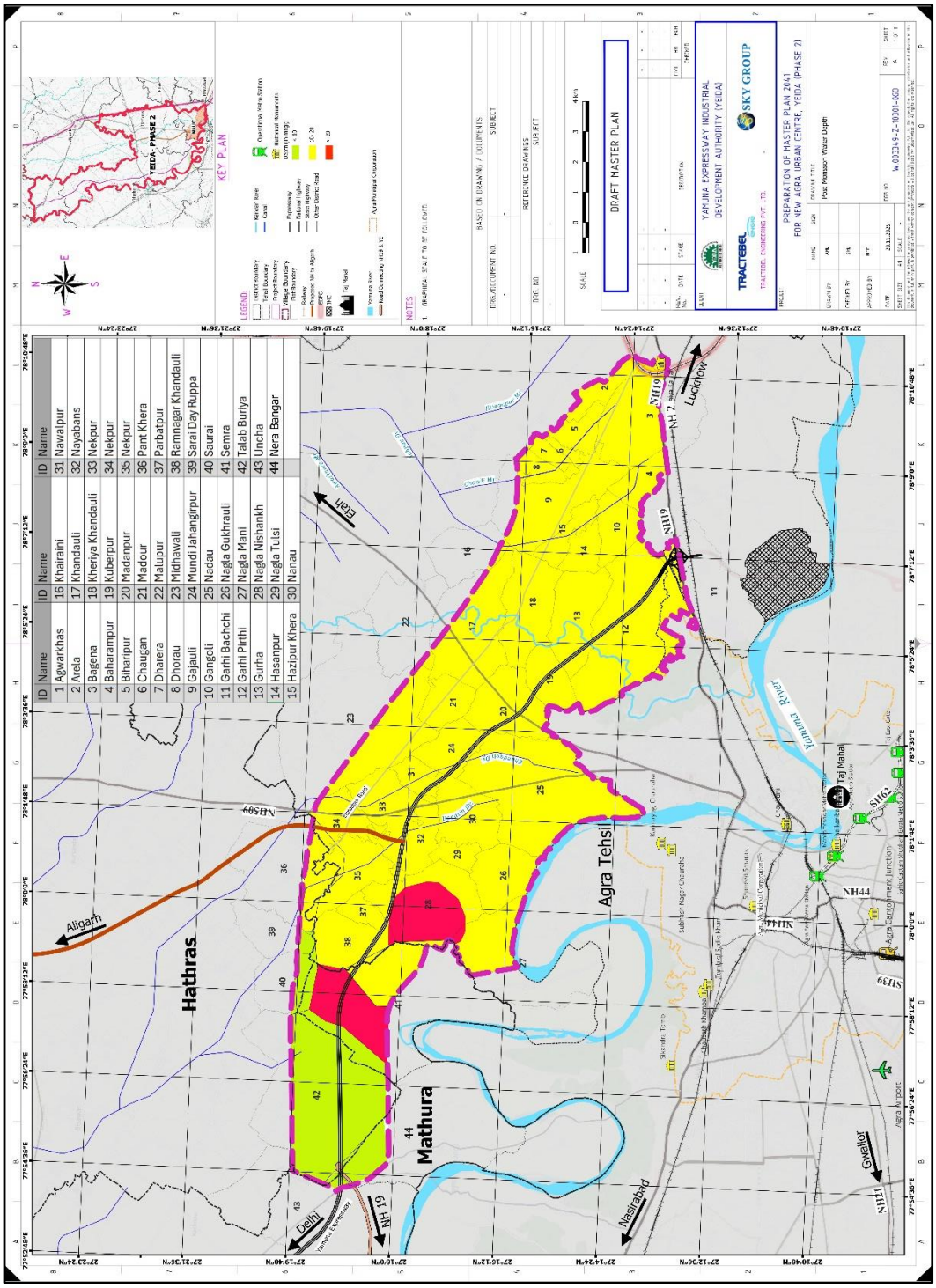


Source: CGWB, 2018

The depth of groundwater in the project area generally ranges between 30 to 40 mbgl. However, certain areas, such as Hazipurkhera and Saraidayruppa, are under stress, with water levels ranging between 40 and 50 meters below ground.

During the post-monsoon period, the groundwater level in the project area remains like the pre-monsoon level. However, the area around Ram Nagar shows an increase in groundwater levels, ranging between 20 to 30 meters.

Figure 6-9 Depth to Water Level Map of AUC, Post Monsoon-2018



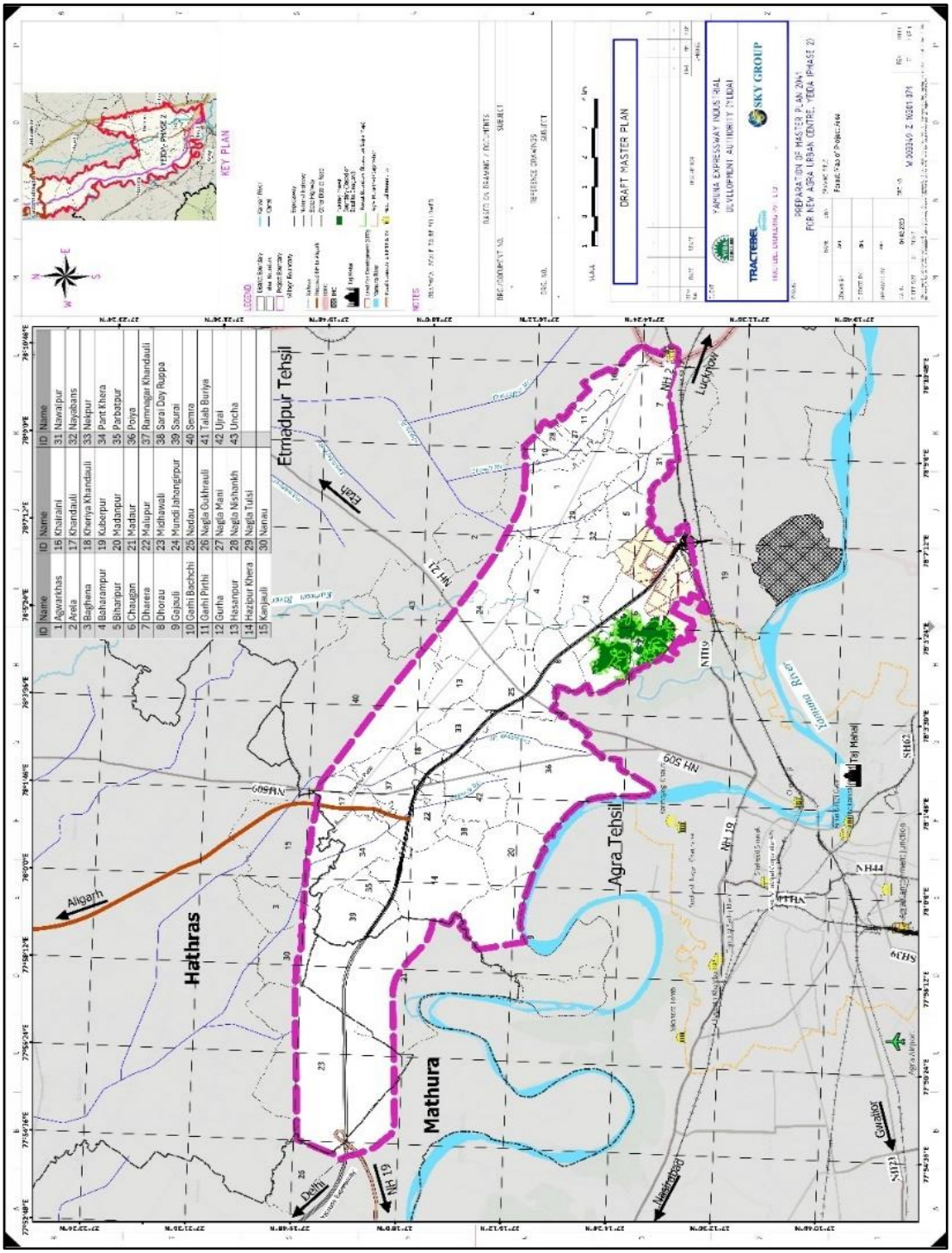
ID	Name
1	Agwarkhas
2	Arela
3	Bagena
4	Baharampur
5	Biharipur
6	Chaugan
7	Dharera
8	Dhorau
9	Gajauli
10	Gangoli
11	Garhi Bachchi
12	Garhi Pirthi
13	Gurha
14	Hasanpur
15	Hazipur Khera
16	Khairaini
17	Khandauli
18	Kheriya Khandauli
19	Kuberpur
20	Madanpur
21	Madour
22	Malupur
23	Midhawali
24	Mundi Jahangirpur
25	Nadau
26	Nagla Gukhrauli
27	Nagla Mani
28	Nagla Nishankh
29	Nagla Tulsi
30	Nanau
31	Nawalpur
32	Nayabans
33	Nekpur
34	Nekpur
35	Nekpur
36	Pant Khera
37	Parbatpur
38	Ramnagar Khandauli
39	Sarai Day Ruppa
40	Saurai
41	Semra
42	Talab Buriya
43	Uncha
44	Nera Bangar

Source: CGWB, 2018

6.5. Forest

The reserved forest at Chaugan makes up for around 306.47 Ha which is 2.12% of the site area. The forest area is aligned at southeast part of the project area. The major villages area Chaugan, Kuberpur, part of Gurha as well as part of Pohiya. Forest area demarcation is as under.

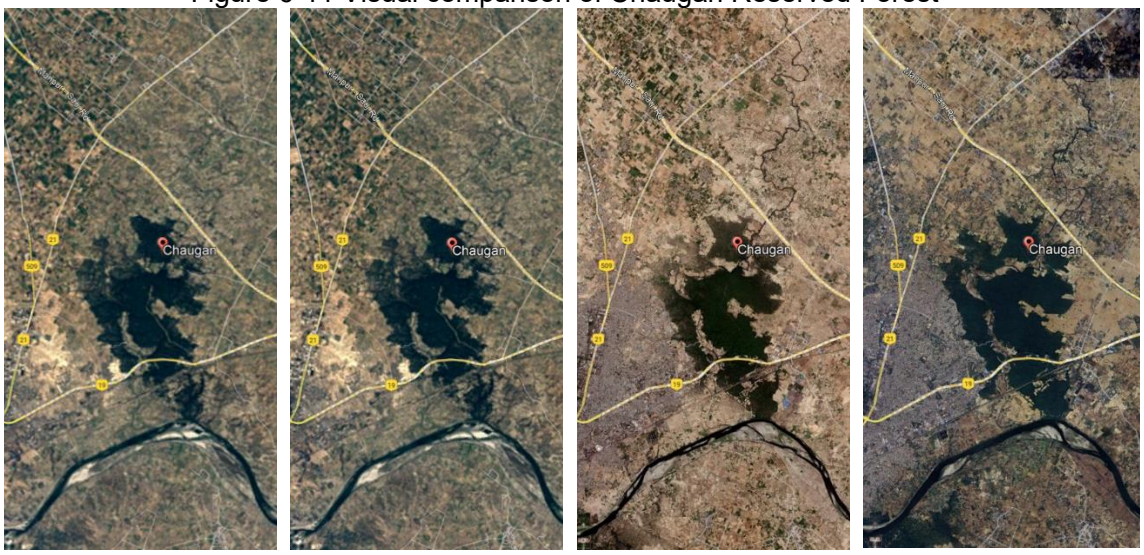
Figure 6-10: Forest Map of the Project Area



Source: Cadastral maps and Satellite imagery

A visual comparison of forest area over past three decades reveals that the expanse of the forest area has broadly remained unaltered.

Figure 6-11 Visual comparison of Chaugan Reserved Forest



1995 2005 2015 2025

Source: Google earth imageries by Copernicus, 1995, 2005, Maxar Technologies 2015 and Airbus 2025

The forest has been clearly demarcated as part of the proposed land use plan as well. There is no development proposed inside the forest area. Only compatible land uses such as recreational green, tourism and residential have been designated in the vicinity of the reserved forest, to safeguard it from undue pressure of development. Towards North, the forest shares its boundary with the 500 m wide buffer of Karwan River.

6.6. ENVIRONMENTAL THREATS

6.6.1. Water Pollution

Agra's groundwater quality shows significant variability due to geogenic and anthropogenic influences. In certain areas, water is brackish to saline, making it unsuitable for drinking and irrigation without treatment.

Table 6-3 Chemical Analysis Results of Ground Water Samples

S.No.	Phase	Block	Concentration in mg/l						
			pH	CO3	HCO3	Cl	NO3	SO4	District
1	Phase 2	Etmadpur	8.04	nd	359.7	367.09	10.6	519.12	Agra
2	Phase 1, 2, 3	Khandauli	8.06	nd	408.75	528.11	44.86	1,292.20	Agra
3	Phase 1, Phase 3	Sadabad	8	nd	842	312	32	138	Hathras
4	Phase 1	Baldeo	8.55	72	256	14	8	102	Mathura

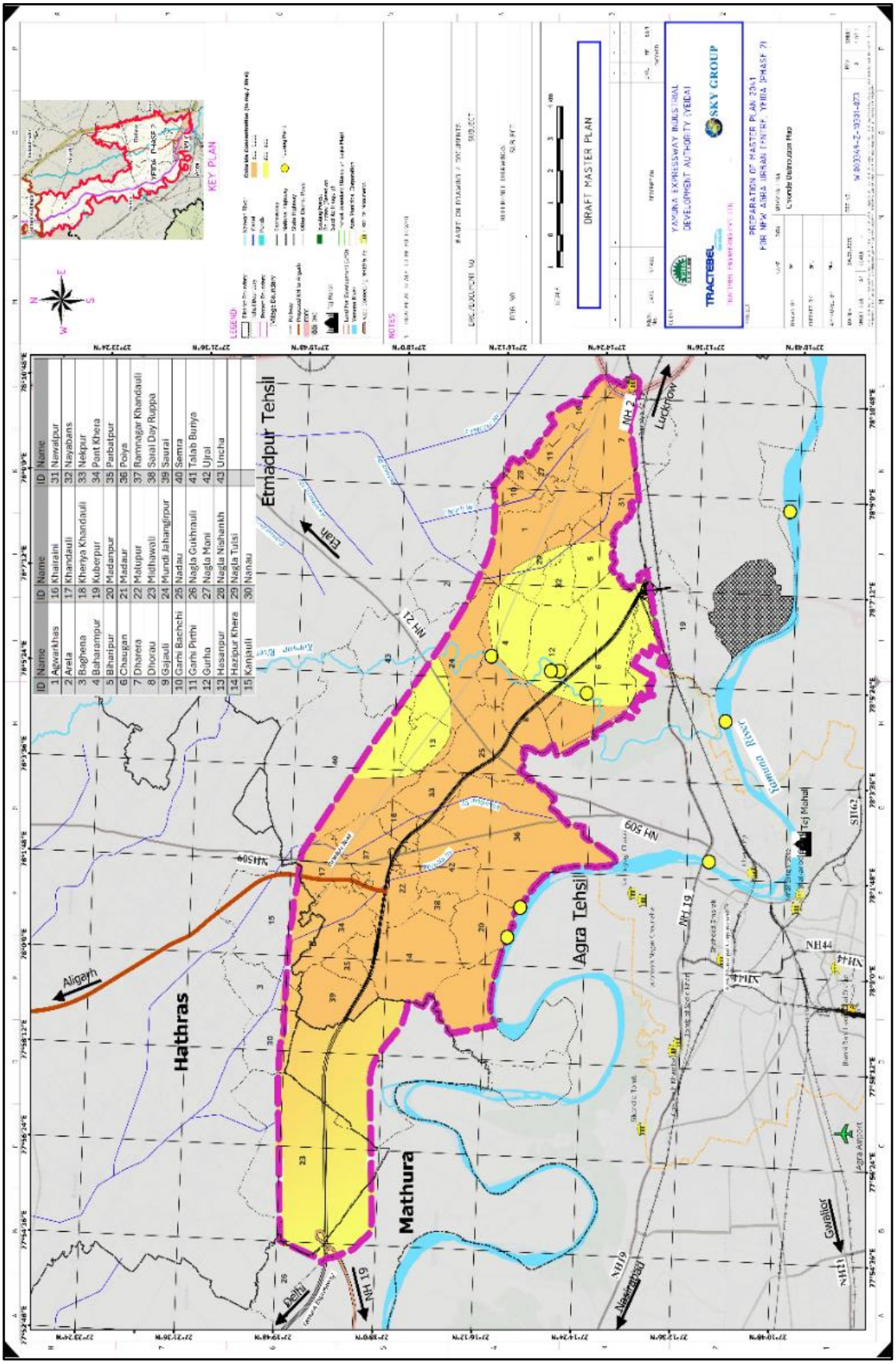
Source: CGWB, 2018

pH Value: Notably, 74% of groundwater samples exhibit pH values between 7.7 and 8.5, classifying the groundwater as moderately alkaline.

Sulphate (SO_4): Sulphate levels exceeding the permissible limit of 400 mg/l were detected in 17 water samples, accounting for 28% of the total. **These elevated levels were observed in blocks such as Achhnera, Akola, Bichpuri, Etmadpur, Fatehpur Sikri, Jagner, Kheragarh, Khandauli, and Shamsabad.**

Chloride: The chloride distribution map highlights the groundwater quality in terms of chloride concentrations in the region surrounding Agra. The analysis reveals two distinct zones based on chloride levels. The first zone, with concentrations ranging from 200–500 mg/L,. The second zone, with chloride levels between 500–1000 mg/L, High-chloride zones require immediate attention, including the implementation of groundwater treatment technologies like reverse osmosis and the enforcement of stricter regulations on industrial and urban waste disposal.

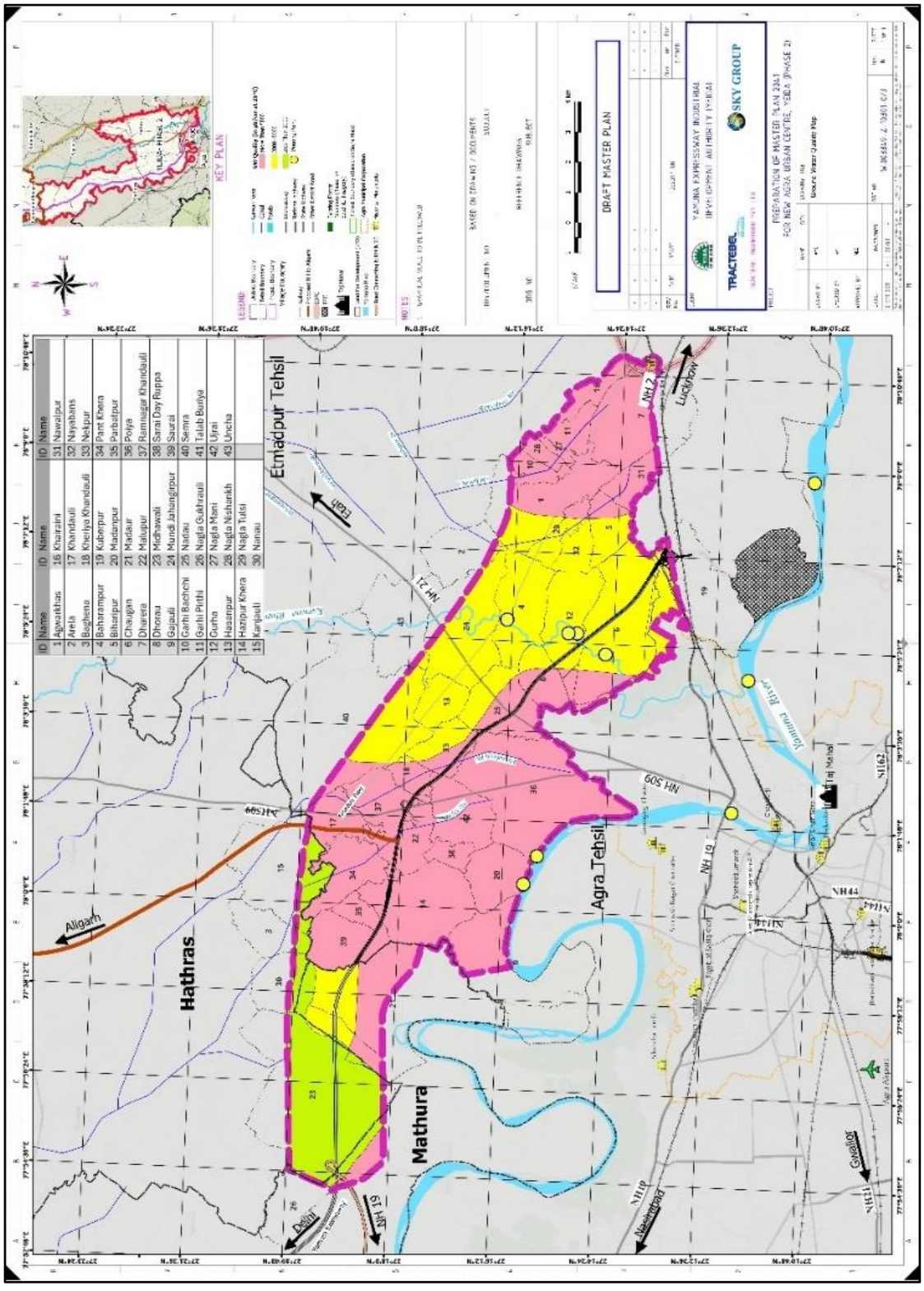
Figure 6-12: Chloride Distribution Map of the Project Area



Source: CGWB, 2018

ELECTRICAL CONDUCTIVITY (E.C.): The following map categorizes the region into two zones based on EC levels: 2000–3000 µS/cm and more than 3000 µS/cm, providing a clear picture of groundwater quality distribution.

Figure 6-13: Ground water Quality Map (Electrical Conductivity)



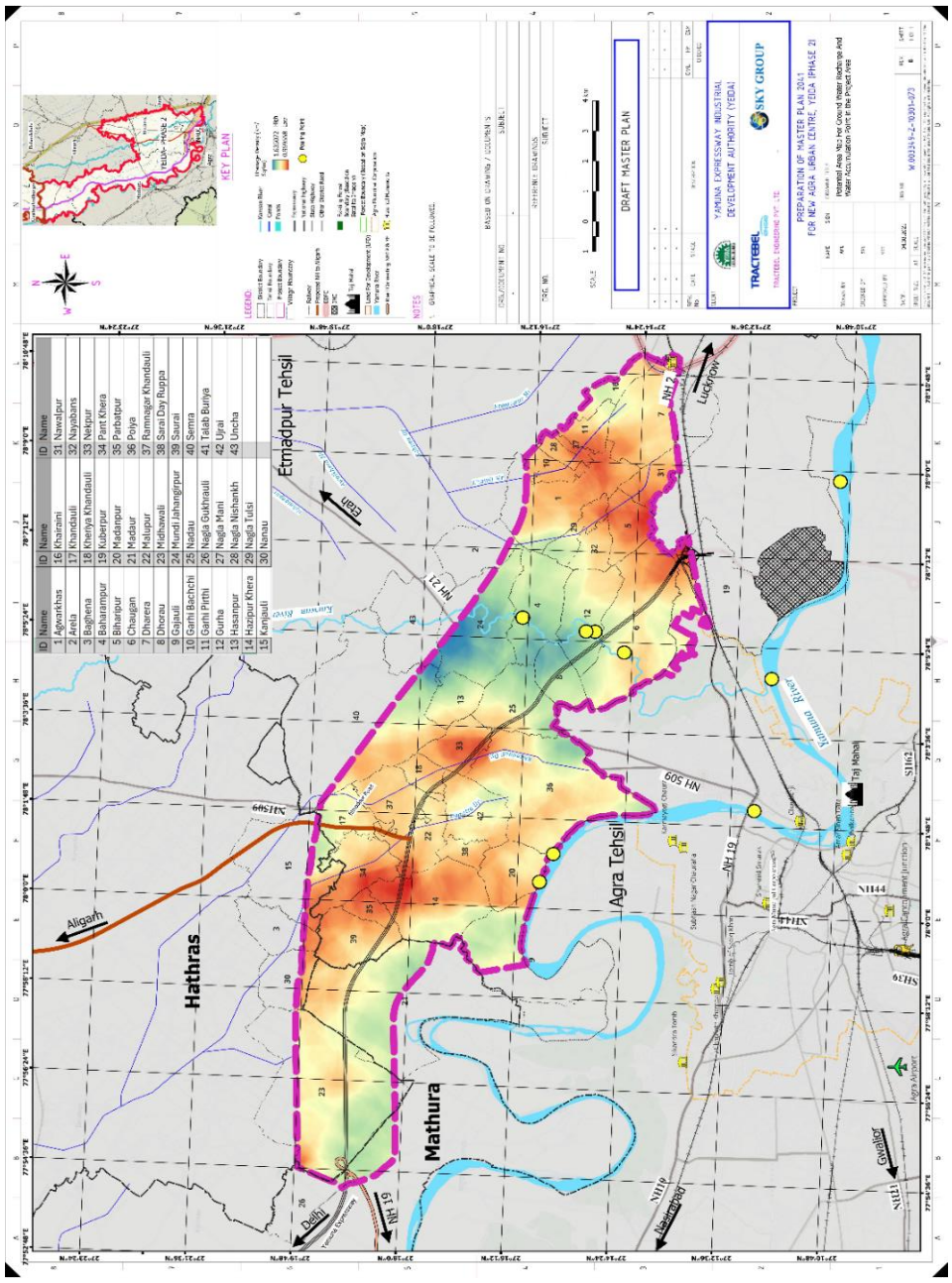
Source: Consultant Analysis based on CGWB Report 2018

To reduce these contamination use of fertilizer should be restricted with organic manure and sanitation, and industrial wastewater treatment is highly recommended in the project area.

To address these challenges, sustainable groundwater management is essential. **Artificial recharge techniques, such as rainwater harvesting and managed aquifer recharge, can help dilute salinity and improve groundwater quality.** Ground Water Recharge and Restriction of Withdrawal of Groundwater are necessary.

After overlay analysis it is been clearly vivid that project site has low drainage density has more infiltration rate which has potentiality to rise ground water and where drainage density is high i.e. water channel is more their surface water runoff is high which can be stored for future use by form of sponge city.

Figure 6-14 Potential Area for Ground Water Recharge and Water Accumulation Point



Source: Consultant Analysis based on USGS Earth Explorer: SRTM-DEM

Refer figure above for Potential Area for Ground Water Recharge and Water Accumulation Point.
So identified area for water conservation plan are being categorised into following major action Plan:

1. Infiltration high potential area for ground water Recharge Zone
2. Water channels are for natural drainage to eradicate probability of flood in project area
3. Bioswales plantation along road to maintain additional water consumption
4. Rainwater Harvesting through reservoirs by making lakes, Ponds
5. Roof top harvesting mandatory norms for each constructed unit
6. Construction of Embankment along flood prone areas
7. River Front area for leisure and walkways

6.6.2. Air Pollution

The air quality of project area is currently categorized as "unhealthy," with significant levels of pollutants such as PM2.5 and PM10. As of recent data, the PM2.5 concentration was approximately 91.8 µg/m³, which is about 18 times higher than the World Health Organization's (WHO) recommended annual limit. Similarly, PM10 levels and other pollutants like NO2, CO, and SO2 are elevated, contributing to poor air quality in the region.
Basis of available data nearby air quality monitoring centre Itmadpur and Kuberpur in Agra have been considered as base line. Both location have Uttar Pradesh State Pollution Control Board installed air quality monitoring station. Through interpolation method by Aqua weather web site has analysed few locations database which area lso tabulated as under to compare the baseline condition of area.

Table 6-4 Air Quality Levels at Various Monitoring Stations

Ambient Air Qulity Parameter	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	NO_2 µg/m³	SO_2 µg/m³	O_3 µg/m³	CO µg/m³
Standard	200 µg/m³	100 µg/m³	80 µg/m³	80 µg/m³	180 µg/m³	2000 µg/m³
Agra	242 µg/m³	318 µg/m³	51 µg/m³	21 µg/m³	12 µg/m³	50 µg/m³
Itmadpur	39 µg/m³	73 µg/m³	17 µg/m³	23 µg/m³	38 µg/m³	44.3 µg/m³
Kuberpur	84 µg/m³	143 µg/m³	13 µg/m³	32 µg/m³	43 µg/m³	860 µg/m³
Bajana	91 µg/m³	157 µg/m³	15 µg/m³	30 µg/m³	26 µg/m³	762 µg/m
Khandauli	85 µg/m³	169 µg/m³	15 µg/m³	22 µg/m³	26 µg/m³	674 µg/m³
Nayabans	58 µg/m³	112 µg/m³	11 µg/m³	24 µg/m³	70.9 µg/m³	18 µg/m³

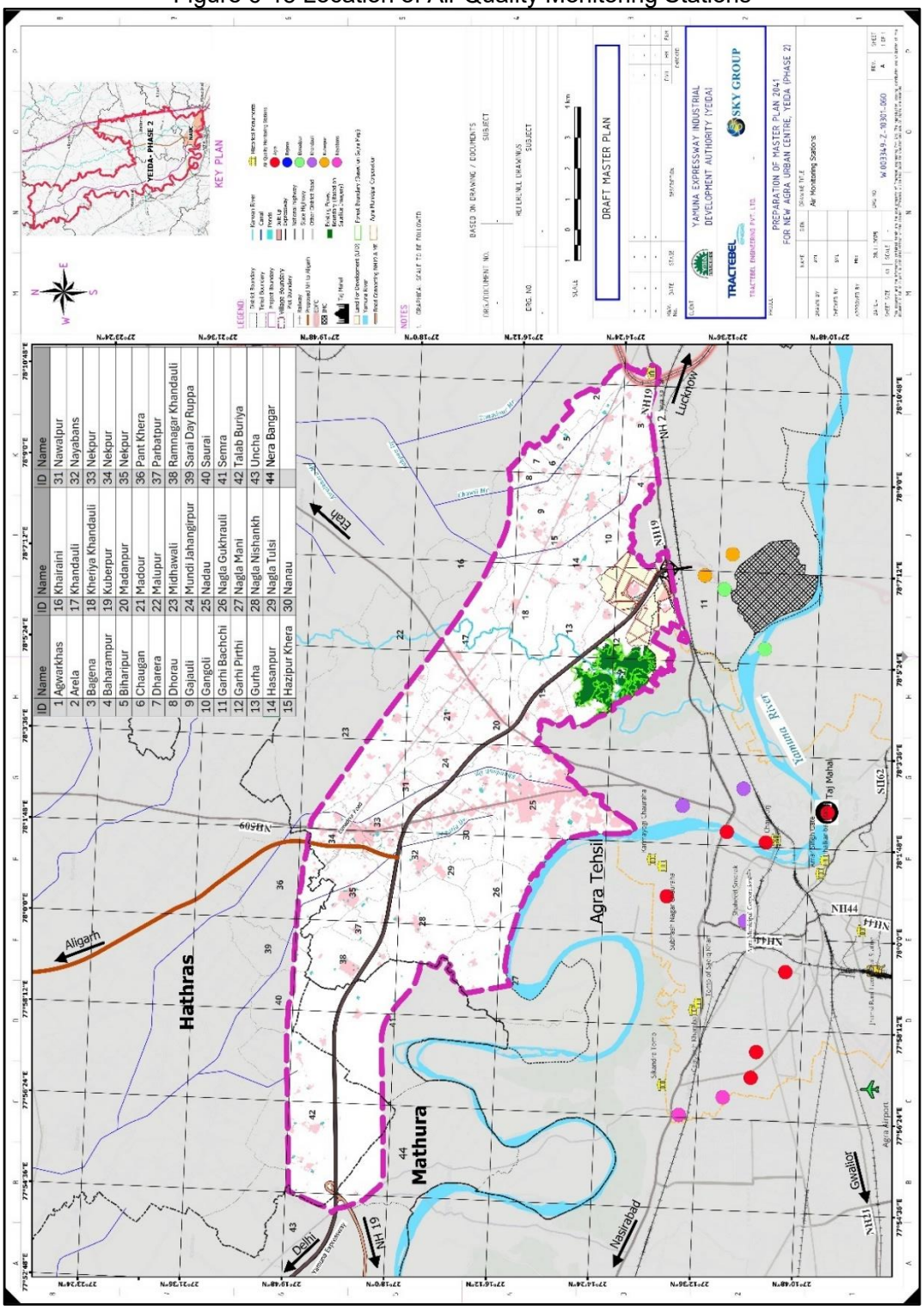
Source: SPCB, Agra -2025 & Aqua Air website

$PM_{2.5}$ is Fine Particulate Matter are inhalable pollutant particles with a diameter less than 2.5 micrometers that can enter the lungs and bloodstream, resulting in serious health issues. The most severe impacts are on the lungs and heart. Exposure can result in coughing or difficulty breathing, aggravated asthma, and the development of chronic respiratory disease. The maximum concentration has been noticed in Agra town followed by Khandauli location. Although project areas all valued are within permissible limit i.e. 200 µg/m³
PM_{10} is Particulate Matter are inhalable pollutant particles with a diameter less than 10 micrometers. Particles that are larger than 2.5 micrometers can be deposited in airways, resulting in health issues. Exposure can result in eye and throat irritation, coughing or difficulty

breathing, and aggravated asthma. More frequent and excessive exposure can result in more serious health effects. Alomost all location are exceeding permissible limit 100 µg/m³ except Itmadpur location.

NO_2- Breathing in high levels of Nitrogen Dioxide increases the risk of respiratory problems. Coughing and difficulty breathing are common and more serious health issues such as respiratory infections can occur with longer exposure. Although all locations are within permissible limit 80 µg/m³.

Figure 6-15 Location of Air Quality Monitoring Stations



ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
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5	Biharipur	20	Madanpur	35	Nekpur
6	Chaugan	21	Madour	36	Pant Khera
7	Dharera	22	Malupur	37	Parbatpur
8	Dhorau	23	Midhawali	38	Ramnagar Khandauli
9	Gajauli	24	Mundi Jahangirpur	39	Sarai Day Ruppa
10	Gangoli	25	Nadau	40	Saurai
11	Garhi Bachchi	26	Nagla Gukhrauli	41	Semra
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13	Gurha	28	Nagla Nishankh	43	Uncha
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15	Hazipur Khera	30	Nanau		

Source: SPCB, Agra -2025 & Aqua Air website

7. SWOT ANALYSIS

This chapter presents the SWOT Analysis for the project Area which shall guide the further process of visioning and strategy formulation and subsequently, master planning of the project area as per the Strengths, Weakness, Opportunities and Threats identified.

7.1. Consolidated SWOT Analysis for Agra Urban Centre

Table 7-1 SWOT Analysis

STRENGTH	WEAKNESS
Strategic connectivity due to its proximity to the Yamuna Expressway, enhancing access to Delhi, Agra, and Lucknow, which fosters economic growth and positions it as a logistics hub. The **existing infrastructure** of the expressway supports passenger and freight transport, while **tourism proximity**—particularly Agra's global appeal—further drives travel demand. Relatively well-connected by road and rail networks and has potential for further development of transport infrastructure.	The rural area's lack of a well-developed public transportation network, inadequate roads, and underdeveloped freight infrastructure results in heavy reliance on private vehicles and informal transport, poor last-mile connectivity, and limited potential as a regional supply chain hub.
AUC presents a promising investment destination due to its strategic connectivity, robust agricultural base, tourism potential, abundant labor supply, and affordable land costs, fostering opportunities for diverse industries.	Economic growth is hampered by skill gaps, inefficient land use in agriculture, and security concerns. Strengthening education, land consolidation, and security frameworks can enhance industrial development, agricultural efficiency, and investment attraction.
The region benefits from a young and growing population, abundant labor, and cultural cohesion, which together drive economic growth and development across various sectors and has potential for a skilled workforce.	Limited access to quality education leads to low literacy rates and skill gaps, restricting employability in high-value sectors like IT and manufacturing, while rural areas face an aging agricultural workforce due to youth migration to cities.
The project area is well-connected by roads and rail, with favorable topography supporting efficient infrastructure development. Reliable power supply and extensive mobile network coverage further enhance the region's development potential.	Rural areas struggle with inadequate infrastructure, overexploited groundwater, weak waste management, and poor sanitation. These issues are compounded by the migration of young individuals to cities, leading to an aging population in agriculture.

Proximity to major tourist attractions (Taj Mahal, Agra Fort) provides a strong economic base and generates a significant revenue stream and has potential for growth of tourism-related businesses and employment in related service industries.	Over-reliance on tourism, making the economy vulnerable to fluctuations and has limited diversification of economic activities
AUC diverse geomorphology, loamy soils, stable geology, and interconnected aquifers support groundwater recharge, while distinct seasons and surface water channels enhance tourism, agriculture, and resource management	The region faces **climate challenges, poor drainage, soil degradation, and groundwater issues**. Groundwater problems include **over-extraction, contamination, and limited aquifer development**, while loose alluvial soil increases liquefaction risks.
OPPORTUNITY	**THREAT**
Development of new tourism products and experiences. Promotion of sustainable tourism practices and increased national and international tourism.	Fluctuations in tourism demand due to economic or political factors. Competition from other tourist destinations and negative impacts of climate change.
Diversification of the economy through the development of new industries. Attracting investment in infrastructure and services and growth of small and medium sized enterprises.	Increased competition from other urban centres. Economic downturns or recessions.
Development of improved public transportation systems and investment in road and rail infrastructure upgrades.	Unplanned transportation growth in rural areas can cause environmental damage, congestion, economic strain, safety risks, and inefficiencies due to policy gaps. Increased migration to the urban centre leading to over population.
Implementation of sustainable infrastructure solutions and investment in renewable energy sources.	Limited access to quality education, fragmented agricultural land, and weak security measures hinder economic growth, deter investment, and reduce workforce competitiveness.
Expansion of educational and healthcare facilities and development of community centres and recreational spaces	
Implementation of environmental protection measures and promotion of sustainable urban development.	Climate change impacts, such as increased heatwaves and flooding and continued environmental degradation.
Development of disaster preparedness and response plans with investment in disaster-resistant infrastructure.	Increased frequency and intensity of natural disasters and lack of preparedness for disasters.

Source: Consultant Analysis

7.2. Sector-wise SWOT Analysis

Detailed SWOT analysis of Agra Urban Centre has been conducted, considering the following factors: Transport, Economy, Demography, Physical Infrastructure, Social Infrastructure, Environment, Disaster Vulnerability, Tourism

7.2.1. TRANSPORT

Table 7-2 SWOT Analysis: Transport

STRENGTH	WEAKNESS
1. Strategic Location: Proximity to the Yamuna Expressway offers seamless connectivity to Delhi, Agra, and Lucknow, positioning the area as a potential logistics and transit hub. The expressway provides high-speed road access, reducing travel time and increasing economic activity.	1. **Limited Local Transport Options**: The rural area lacks a well-developed public transportation network, leading to reliance on private vehicles and informal transport systems.
2. Existing Infrastructure: The expressway is a major arterial route with excellent road conditions, toll facilities, and rest areas that can support growth in passenger and freight transport.	2. **Poor Last-Mile Connectivity**: Villages and smaller settlements often face inadequate roads and infrastructure, making access to the expressway challenging.
3. Tourism Proximity: Agra's status as a global tourist destination can boost transport demand, including local travel for visitors exploring rural heritage and eco-tourism sites.	**Underdeveloped Freight Infrastructure**: Absence of logistics hubs, warehousing, and multimodal facilities limits the area's potential as a regional supply chain node.
OPPORTUNITY	**THREAT**
1. **Development of Logistics Hubs**: The area can be developed as a logistics and warehousing hub, leveraging its location on the expressway to facilitate regional and inter-state goods movement.	1. **Environmental Concerns**: Increased transportation activities may lead to air and noise pollution, impacting the rural environment and agricultural lands.
2. **Public Transport Expansion**: Investments in rural bus networks, shared mobility solutions, and last-mile connectivity can improve access to education, healthcare, and markets for rural residents.	2. **Traffic Congestion**: Unplanned growth and inadequate management of transport flows could lead to congestion on feeder roads and local thoroughfares.

Sustainable Transport Options: Introduction of electric buses, charging stations, and non-motorized transport can promote eco-friendly mobility solutions.	**Economic Volatility**: Fluctuations in fuel prices and maintenance costs can affect affordability and sustainability of transport options for rural populations
Tourism Integration: Enhanced transport facilities can support rural tourism initiatives, connecting visitors to heritage sites, eco-parks, and cultural attractions near Agra.	**Safety Risks**: High-speed traffic on the expressway poses safety concerns for local residents, particularly pedestrians and cyclists.
Industrial Development: Proximity to the Yamuna Expressway makes the area attractive for industrial and commercial development, creating synergies with the transportation sector.	**Policy and Investment Gaps**: Lack of coordinated planning and investment at the local level could hinder the development of an integrated and efficient transportation system.

Source: Consultant Analysis

7.2.2. ECONOMY

Table 7-3 SWOT Analysis: Economy

STRENGTH	WEAKNESS
Strategic Location: The area's proximity to the Yamuna Expressway connects it to major economic hubs like Delhi, Noida, Agra, and Lucknow, providing access to large markets and resources. Excellent road infrastructure facilitates movement of goods and services, benefiting trade and commerce.	**Skill Gaps**: A lack of access to quality education and vocational training leads to a workforce with limited technical and professional skills, deterring high-value industries.
Agricultural Base: The rural economy is supported by fertile lands, with crops such as wheat, sugarcane, and vegetables contributing to steady incomes and potential for agro-industries.	**Fragmented Landholdings**: Small and fragmented agricultural plots reduce productivity and hinder mechanization and large-scale farming operations.
Tourism Proximity: Close to Agra, a global tourism hub, the area has potential for rural tourism, heritage tours, and eco-tourism, attracting domestic and international visitors.	**Security and Safety** The crime and security framework needs to be strengthened to attract investments and professionals.

Labor Availability: A large pool of unskilled and semi-skilled labor is available for agriculture, construction, and small-scale industries, reducing operational costs for businesses.	
Lower Land Costs: Comparatively lower land prices make the area attractive for investments in industries, logistics hubs, and residential projects.	
OPPORTUNITY	**THREAT**
Agro-Based Industries: Proximity to agricultural production areas provides opportunities to develop food processing units, cold storages, and agro-logistics hubs to add value to raw produce.	**Environmental Degradation**: Unregulated industrial and economic activities can lead to soil erosion, water pollution, and loss of agricultural productivity.
Logistics and Warehousing: The area's location on the Yamuna Expressway makes it ideal for logistics hubs, warehouses, and distribution centres, benefiting from the regional and inter-state trade network.	**Infrastructure Deficits**: Delays in infrastructure projects, such as power supply upgrades and road maintenance, can deter investors and slow economic progress.
Rural Tourism: Potential to promote rural tourism with cultural, historical, and eco-tourism initiatives, leveraging Agra's global tourism appeal.	**Outmigration**: Lack of local employment opportunities may lead to migration of youth to urban centres, leaving behind an aging workforce.
Industrial Growth: Policies such as the UP Defense Industrial Corridor and incentives for MSMEs can attract investments in light manufacturing, packaging, and allied industries.	**Competition from Established Hubs**: Nearby economic zones like Noida and Greater Noida may overshadow the area, attracting the majority of investments and skilled labor.
Skill Development and Education: Establishing vocational training centres and educational institutions can enhance the local workforce's employability and attract industries seeking skilled labor.	**Policy Uncertainty**: Inconsistent or unclear government policies regarding land acquisition, industrial incentives, and rural development may create hurdles for investors.
Renewable Energy Projects:	

The rural setting provides opportunities for solar and wind energy projects, creating a green energy hub that supports sustainable economic growth.	

Source: Consultant Analysis

7.2.3. DEMOGRAPHY

Table 7-4 SWOT Analysis: Demography

STRENGTH	WEAKNESS
Young Population: A high proportion of youth in the demographic profile provides a potential workforce for industries, services, and agriculture.	**Low Literacy Rates**: Limited access to quality education results in low literacy levels, restricting employability and skill development in higher-value sectors.
Labour Availability: The area has an abundant supply of unskilled and semi-skilled labor, which is valuable for agriculture, construction, and small-scale industries. Skilled labour in sectors of leather, food processing and manufacturing creating an ecosystem of economic growth.	**Skill Gaps**: A lack of vocational training and professional education limits the ability of the population to participate in advanced industries like IT/ITES or manufacturing.
Cultural Cohesion: Strong community ties and cultural traditions foster social stability and collective action in the population.	**Aging Population in Agriculture**: Migration of younger individuals to urban areas leaves an aging population engaged in farming and rural activities.
Population Growth: Moderate population growth offers a steady demand for goods, services, and infrastructure development, creating opportunities for local businesses.	
OPPORTUNITY	**THREAT**
Skill Development Programs: Government and private sector initiatives can provide vocational training, improving employability and income potential for the local population.	**Outmigration**: A continued lack of employment opportunities may lead to further migration of the youth to urban centres, resulting in a depleted workforce in rural areas.
Youth Empowerment:	**Social Inequality**:

Investments in education, sports, and cultural activities can channel the energy of the young population into productive avenues, including entrepreneurship and innovation.	Economic disparities within the population may lead to unequal access to education, healthcare, and employment opportunities, creating social tension.
Industrial Growth: The proximity to the Yamuna Expressway makes the area attractive for industries, creating job opportunities for the local population in sectors like manufacturing, agro-processing, and logistics.	**Resistance to Change**: Traditional mindsets and resistance to adopting new technologies or modern practices may slow the pace of demographic and economic transformation
Rural-Urban Migration Reversal: Development of industries and infrastructure can encourage residents who migrated to urban areas to return, bringing with them skills and resources.	
Industrial Development: Proximity to the Yamuna Expressway makes the area attractive for industrial and commercial development, creating synergies with the transportation sector.	

Source: Consultant Analysis

7.2.4. PHYSICAL INFRASTRUCTURE

Table 7-5 SWOT Analysis: Physical Infrastructure

STRENGTH	WEAKNESS
Connectivity: The project area is served by a network of roads and rail which can be further diversified for better connectivity.	**Inadequate Infrastructure**: Lack of modern infrastructure such as Water treatment plants, sewer treatment plants, covered drainage channels, etc. Only very basic infrastructure is available.
Topography: The project area is more or less a flat terrain, gently sloping towards the water bodies. This makes providing for supply networks easier and cost effective.	**Ground water:** Most of the villages are extracting Ground water through Boreholes, tube wells and hand pumps, which is already over exploited and cannot be used as a water source unless recharged.
Electric Supply: All the villages have access to Power Supply for Domestic, agriculture, commercial and other uses.	**Solid Waste Management:** Garbage collection and waste disposal system is in place only for partial area. There is hardly any Community Bio-gas unit or recycle of waste for production use.

Mobile Phone Coverage: All the villages coming in Agra Urban Centre have access to mobile phone coverage. A few villages have access to landlines as well.	**Sanitation:** There is no availability of community toilet complex. Only a handful of villages are covered under Total Sanitation Campaign.
OPPORTUNITY	**THREAT**
Solar Energy: The project area has a decent potential for harnessing solar energy for meeting electricity needs.	**Contamination**: Due to the presence of multiple industries along the course of river Yamuna and Karwan, the water tends to be contaminated and must be subject to a high degree of purification before use.
River Water: The area is fed by Yamuna River and Karwan River which may be utilized for water extraction.	**Water Scarcity**: Due to the presence of multiple barrages on River Yamuna, upstream of the project area, the water availability may be restricted in dry season. This emphasises the need for more water reuse.
	High Cost: The cost of living in the Urban Centre may go up as water will have to be recycled for meeting the water requirements.
	Funding Challenges: Limited budget allocations for physical infrastructure development may delay or restrict development.

Source: Consultant Analysis

7.2.5. SOCIAL INFRASTRUCTURE

Table 7-6 SWOT Analysis:Social Infrastructure;

STRENGTH	WEAKNESS
Proximity to Urban Centres: Nearby cities like Agra and Noida provide access to established educational institutions, which can act as benchmarks for development.	**Low Literacy Rates**: Many rural residents have limited access to basic education, which hinders their socioeconomic mobility.
Government Support: Policies promoting rural education and schemes like skill development programs can enhance educational infrastructure	**Inadequate Infrastructure**: Lack of schools, libraries, and technology-enabled learning centres leads to unequal educational opportunities.

Proximity to Urban Hospitals: Access to hospitals in Agra can supplement rural healthcare facilities during emergencies.	**Limited Infrastructure**: Shortage of primary healthcare centres, diagnostic labs, and specialized medical facilities in the area.
Government Schemes: Policies like Ayushman Bharat offer opportunities for affordable healthcare access.	**Lack of Infrastructure**: Absence of community centres, cultural halls, and recreational spaces limits engagement.
Rich Cultural Heritage: The area's traditions, festivals, and crafts offer a strong foundation for socio-cultural development.	
Tourism Potential: Proximity to Agra makes the area a viable location for cultural events and rural tourism.	
OPPORTUNITY	**THREAT**
Skill Development Centres: Establishing vocational training and IT centres aligned with local industries like agro-processing and logistics.	**Outmigration**: Young individuals may migrate to cities for better education, leading to population decline and underutilization of local facilities.
Digital Education: Expanding e-learning platforms and digital classrooms to bridge the urban-rural divide.	**Cost Barriers**: Affordability challenges for low-income families may limit access to healthcare services.
Partnerships: Collaboration with NGOs and private institutions can bring innovative teaching methods and resources to rural schools.	**Epidemics and Pandemics**: Poor sanitation and lack of awareness increase vulnerability to health crises.
Private Investment: Encouraging private healthcare providers to establish multi-specialty hospitals and clinics.	**Funding Challenges**: Limited budget allocations for socio-cultural initiatives may delay or restrict development.
Heritage and Eco-Tourism: Developing cultural centres, craft villages, and eco-tourism destinations to attract visitors.	

Source: Consultant Analysis

7.2.6. ENVIRONMENT

Table 7-7 SWOT Analysis: Environment

STRENGTH	WEAKNESS
Rich Geomorphology: Diverse landforms such as alluvial plains, ravines, structural valleys, and hills that offer unique environmental opportunities.	**Climate Challenges:** ○ Rising mean temperatures and heatwave occurrences due to urban heat islands. ○ Erratic and decreasing rainfall reliability disrupts water availability.
High percolation rates in loamy soils improve groundwater recharge potential.	**Drainage Limitations:** ○ Low drainage density indicates insufficient natural channels, leading to waterlogging and inefficient rainwater harvesting. ○ Poorly maintained natural drainage systems near expressways accumulate water without proper conservation.
Climate: Distinct seasons with a favourable winter climate support tourism and agricultural activities.	**Soil Erosion and Fertility Issues:** ○ Ravine and Chambal soils are less fertile and unsuitable for cultivation. ○ Compact and calcareous soils in some areas hinder water retention and plant growth.
Baseline Environmental Data: Comprehensive historical data aids in understanding trends like temperature rise, rainfall variations, and groundwater development.	**Urban Development Pressure:** Increasing urbanization exacerbates environmental stress through habitat loss and increased surface runoff.
Geological Stability: Agra lies in Seismic Zone III, indicating moderate earthquake risk with no fault lines in proximity.	**Limited Aquifer Development:** Absence of major aquifer belts due to saline water zones below 50 meters and impervious clay layers.
Aquifer Recharge: Presence of interconnected aquifer layers and natural recharge through rainfall and seepage supports groundwater replenishment.	**Groundwater Depletion:** Over-extraction in critical blocks (Etmadpur and Khandauli), leading to over-exploited groundwater resources.

Surface Water Channels: The Yamuna and Karwa rivers, along with a network of drainage channels, offer potential for water resource development and management.	**Groundwater Contamination:** High levels of salinity, chloride, sulphate, and nitrates in groundwater make it unsuitable for drinking and irrigation without treatment.
	Susceptibility to Liquefaction: Loose alluvial soil increases the risk of liquefaction during seismic events, amplifying structural vulnerabilities.
	Seasonal Water Level Variations: Fluctuations in groundwater depth and quality affect availability and usability.
OPPORTUNITY	**THREAT**
Water Resource Management: ○ Identified pouring points and watersheds can be developed for rainwater harvesting and conservation. ○ Opportunities to rejuvenate the Karwa and Yamuna rivers for flood management and water storage.	**Environmental Degradation:** ○ Continued urbanization could lead to further loss of fertile land and natural drainage systems. ○ Increased temperature trends could worsen heat-related illnesses and crop yields.
Agriculture and Land Use Optimization: ○ Fertile alluvial plains provide a strong base for sustainable agriculture. ○ Ravine areas can be repurposed for afforestation or eco-tourism.	**Water Scarcity:** Erratic rainfall patterns and low groundwater recharge could exacerbate water shortages.
Climate Resilience Initiatives: ○ Potential to develop strategies addressing urban heat islands and extreme temperature variations. ○ Implementation of climate-smart practices to enhance agricultural and urban resilience.	**Soil and Land Instability:** Ravine expansion and erosion threaten nearby agricultural lands and settlements.
Policy Support and Sustainable Development: ○ Government focus on watershed development and environmental	**Natural Disaster Risks:** Flooding along river basins due to erratic monsoons and poor drainage.

sustainability opens funding and policy opportunities. ○ Integration of environmental data for strategic urban and rural planning.	
Sustainable Water Management: Potential for rainwater harvesting, artificial aquifer recharge, and better regulation of groundwater extraction.	**Climate Variability:** Changing rainfall patterns could impact aquifer recharge and increase reliance on groundwater.
Water Quality Improvement: Deployment of advanced treatment technologies like reverse osmosis for saline and contaminated groundwater.	**Urbanization:** Rapid population growth and industrialization exacerbate groundwater over-extraction and contamination risks.
Utilization of Surface Water: Effective management of the Yamuna and its tributaries can support irrigation and urban water supply needs.	**Agricultural Practices:** Excessive use of fertilizers contributes to nitrate contamination in groundwater.
Community Engagement: Public awareness programs for water conservation and safe water use can mitigate over-extraction and contamination.	**Water Salinity:** High salinity levels in certain zones pose risks to agriculture, drinking water supply, and infrastructure durability.
Infrastructure Development: Improved drainage and water storage infrastructure at identified pouring points can enhance water management in the region.	**Environmental Degradation:** Continued over-extraction and poor water quality management may lead to long-term environmental and socio-economic issues.

Source: Consultant Analysis

7.2.7. DISASTER VULNERABILITY

Table 7-8 SWOT Analysis: Disaster Vulnerability

STRENGTH	WEAKNESS
Geographical Advantage: The flat terrain of the Indo-Gangetic plains and fertile land provide significant agricultural benefits.	**Urban Flooding**: Poor drainage infrastructure in urban areas, leading to waterlogging and disruptions during heavy rains.
Irrigation Infrastructure: An established network of canals supports agricultural productivity.	**Vulnerability to Heatwaves**: High temperatures frequently exceeding 45°C negatively impact human health, agriculture, and water resources.

Disaster Management Plans: Availability of frameworks such as the Flood Action Plan, HRVA, and Heat Wave Plan, providing structured approaches to disaster mitigation.	**Industrial Risks**: Lack of robust safety protocols in industries and cold storage facilities increases fire hazards.
Road Connectivity: Infrastructure like the Yamuna Expressway enhances regional connectivity and facilitates quicker evacuation during emergencies.	**Traffic Management Issues**: High accident rates on the Yamuna Expressway due to overspeeding, driver fatigue, and inadequate safety measures.
	Seismic Susceptibility: Located in Seismic Zone III, indicating moderate earthquake risk but insufficient preparedness and resilience in infrastructure.
OPPORTUNITY	**THREAT**
Improved Safety Protocols: Implementation of stricter fire safety measures and regular inspections in industrial areas.	**Climate Change**: Increasing intensity and frequency of heatwaves, floods, and other climatic hazards.
Enhanced Infrastructure: Development of resilient urban drainage systems and embankments to mitigate flooding.	**Urbanization Pressures**: Rapid urban growth leading to encroachment on floodplains and increased exposure to hazards.
Community Awareness: Increasing awareness and training programs for disaster preparedness among local communities and industries.	**Resource Strain**: Challenges in addressing water scarcity and sanitation during disasters.
Technological Integration: Use of GIS and other modern technologies for real-time hazard monitoring and risk assessment.	**Negligent Driving**: Persistent issues with driver behavior, such as overspeeding and fatigue, leading to fatal accidents.
Policy Interventions: Strengthening traffic regulations and implementing road safety measures on highways like the Yamuna Expressway.	**Fire and Industrial Hazards**: Escalating risks due to outdated machinery and inadequate emergency response mechanisms in industries.

Source: Consultant Analysis

7.2.8. TOURISM

Table 7-9 SWOT Analysis: Tourism

STRENGTH	WEAKNESS
1. Agra rich Historical and Cultural Heritage and proximity to Wildlife Santuary & National Parks	1. Agra faces challenges in terms of transportation, accommodation, and basic amenities.
2. City is a major hub for domestic and international tourism, particularly for the Golden Triangle circuit (Delhi-Agra-Jaipur).	2. Pollution, traffic congestion, and waste management are significant issues.
3. Agra's heritage and unique experiences has potential for luxury tourism and attract high-end tourists.	3. Tourism is highly seasonal, with peak periods in winter and summer.
4. The city's historical and cultural significance makes it an attractive destination for meetings, incentives, conferences, and exhibitions (MICE).	4. The tourism sector is heavily reliant on the Taj Mahal, limiting its potential for growth.
OPPORTUNITY	**THREAT**
1. Development of Heritage Tourism by exploring and promoting lesser-known historical sites and cultural experiences.	1. Anthropogenic pollution sources upstream of the Yamuna River can adversely affect the city's environmental quality and accelerate the deterioration of its cultural heritage sites.
2. Investment in Infrastructure like transportation, accommodation and facilities.	2. Tourism Sector economic susceptibility to exogenous shocks, particularly global economic downturns, is exacerbated by its heavy reliance on the foreign tourism sector.
3. Diversification of tourism products by offering a wider range of experiences, such as adventure tourism, culinary tourism, and wellness tourism, night tourism by creating night markets and cultural performances	3. The city's tourism development is constrained by infrastructural deficiencies, including limited air seat capacity, poor traveller accessibility
4. Promotion of local handicrafts and souvenirs by organizing craft bazaars and support local artisans.	4. City has inadequate lodging facilities, and a shortage of skilled labor within the tourism sector.

Source: Consultant Analysis

Entertainment areas in the Agra Urban centre as a key factor of success of the hotels that would ensure adequate footfalls. Financing large-scale hospitality projects was another concern, given the substantial upfront investments required.

7.3. Inferences & Conclusion

The SWOC analysis indicates that the Agra Urban Centre holds strong locational advantages, robust connectivity, fertile land, rich cultural heritage, and a young workforce, positioning it as a promising hub for industry, logistics, tourism, and agro-based development. However, critical weaknesses such as inadequate basic infrastructure, groundwater depletion, environmental risks, and skill gaps limit its growth potential. At the same time, opportunities exist in renewable energy, diversified tourism, logistics hubs, and skill development, which can drive inclusive and sustainable growth if tapped effectively. The major challenges lie in managing environmental degradation, infrastructure deficits, outmigration, and over-dependence on Agra's tourism. In conclusion, with strategic planning, infrastructure investment, and sustainable resource management, the region can evolve into a resilient and vibrant urban centre balancing industrial growth, agriculture, and tourism.

SECTION- II: DRAFT MASTER PLAN 2041 & PROPOSALS

8. PROPOSED DEVELOPMENT STRATEGY

8.1. Development Perspectives

Uttar Pradesh is India's 3rd largest economy, contributing nearly 8% to national GDP. The state has India's largest consumer base with population size of nearly 24 Crores. With a rich resource base, UP has 56% of its population size under working age group, which is a key driver for growth.

Uttar Pradesh is placed 2nd on the EoDB rankings under the Business Reforms Action Plan of the Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry, Government of India.

YEIDA has unlocked a continuous stretch of greenfield area in Uttar Pradesh, measuring around 3,429 sq.km, along the Eastern Bank of Yamuna River. By the virtue of Yamuna expressway serving as a central axis to this area, it enjoys direct connectivity to Delhi NCR on one end and Agra city on the other end. The upcoming Noida International Airport (NIA) along the expressway is bound to open new opportunities for the region.

With a rich Industrial resource base and favourable investment climate in the state, YEIDA area has huge potential for growth fuelled by Industrial development.

Agra Urban Centre is planned around the Southernmost section of Yamuna Expressway, falling within Agra District, some 16 km from Agra City. With EDFC passing through its Eastern part, the area enjoys excellent freight connectivity, thereby placing the urban centre within the Primary Influence Zone of AKIC in Uttar Pradesh.

Vicinity to Taj Mahal, Agra which is 16 km away and an excellent approach by road to New Delhi (203 Km), make the Urban Centre part of Golden triangle of tourism (Agra-Delhi-Jaipur) indicating its potential to capitalize upon the city's tourism attractiveness.

The approach is to harness the economic potential of the Urban Centre through Industrial and Tourism development, keeping in mind the ecology and environmental aspects. Owing to the Urban Centre's placement entirely within Taj Trapezium Zone, the focus will be on non-polluting industries.

8.2. Development Imperatives

The following development imperatives shall drive the development in Agra Urban Centre:

- The development imperatives for Agra Urban Centre focus on seamless connectivity, infrastructure-led growth, inclusive planning, green industries and tourism, positioning the city as a sustainable, well-connected, and economically vibrant industrial and tourism hub.

- AUC's development is anchored in its emergence as a competitive industrial hub, supported by robust infrastructure, multimodal connectivity, and inclusive urban growth. A key imperative is the creation of developed industrial land, with facilities for manufacturing, logistics, and allied activities. This industrial framework is to be strengthened by direct freight connectivity to the Eastern Dedicated Freight Corridor (EDFC), Noida International Airport and regional market, enabling seamless movement of goods and positioning the city as a critical node within regional and national supply chains.
- An advanced transportation system shall form the backbone of the masterplan, encompassing modern mass transit modes, a well distributed network of arterial and sub-arterial roads, and seamless last-mile connectivity.
- Strategic alignment with national and state-level initiatives—such as the Uttar Pradesh Defence Industrial Corridor, the Amritsar–Kolkata Industrial Corridor, Invest UP policy incentives, and connectivity to the Noida International Airport—are essential to attract investment and promote industrial diversification.
- Recognizing the city's excellent location from the point of view of tourism, within the Golden Triangle tourism circuit, the plan emphasizes harnessing the tourism footfall by enhancing itinerary and tourism facilities for the tourists visiting Agra and Braj. Thus, it is imperative to bridge the existing gaps in tourism infrastructure, such as developing MICE facilities, cross-segment accommodation facilities and amusement facilities for promoting AUC as an all-round tourism destination.
- A strong focus on environmental sustainability is imperative, ensuring that urban growth coexist with ecological responsibility. This shall include city level environment-protection proposals regarding green energy, ground water restoration, preserving and enhancing blue-green infrastructure, rain-water harvesting etc.
- Inclusivity remains central to the development approach. Existing village settlements are to be integrated into the urban fabric, with improved physical and social infrastructure, livelihood opportunities, and context-sensitive Development Control Regulations (DCRs).
- A carefully proportioned land-use mix balances the primary industrial function with residential, commercial, institutional, and recreational uses, supporting a complete and resilient urban ecosystem making for a thriving urban centre.

8.3. Vision and Objectives

8.3.1. VISION

"To establish Agra Urban Centre as a world-class hub for green and white industries, IT and ITeS, logistics and heritage tourism, supported by state-of-the-art infrastructure and seamless connectivity. The vision is to foster an enabling environment that attracts investment, innovation and entrepreneurship, while ensuring the preservation of its cultural heritage and sustainable development."

8.3.2. OBJECTIVES

Broad Objectives of the Master Plan for Agra Urban Centre are as follows:

1) To leverage the industrial development potential of Agra Urban Centre.
2) To enhance heritage and tourism potential by developing world-class infrastructure and connectivity

3) To formulate a comprehensive land use plan ensuring orderly and sustainable urban development.
4) To attract domestic and global investments through provision of high-quality physical and social infrastructure.
5) To leverage emerging opportunities from regional, national, and global economic shifts and upcoming large-scale infrastructure projects in and around the region.
6) To ensure integrated rural–urban development, creating better economic opportunities for rural communities while enhancing quality of life through improved infrastructure and services.

8.4. Planning Principles Adopted for the Spatial Plan of Urban Centre

The spatial plan for the Agra Urban Centre is grounded in principles designed to create a viable, efficient, and sustainable urban structure. These interconnected principles work together to promote robust development. Key principles include:

- **Enhanced Connectivity** – Regional links + hierarchical grid road network.
- **Compact Urban Form** – Higher density, reduced land use & travel distances.
- **Traffic Management** – Separate regional/city and industrial/residential traffic.
- **Sustainable Transport** – Public transport & NMT with dedicated lanes.
- **Integrated Land Uses** – Jobs, commercial & institutional areas close to residences.
- **Polycentric Development** – CBD with distributed district centres & facilities.
- **Environmental Conservation** – Protect Yamuna & Karwan floodplains, green buffers, reforestation.
- **Green Spaces** – Parks, open spaces, belts along roads, canals & drains.
- **Rural Integration** – Alternative jobs for villagers impacted by agricultural land loss.

8.5. Planning and Design Concept

The Agra Urban Centre's master plan is guided by the following core intentions:

- **Land as a Scarce Resource** – Compact city development to minimize agricultural land loss.
- **Transit-Oriented Development** – Centre near transport hubs & interchanges to leverage connectivity.
- **Expressway Influence Zone** – Development within 2–4 km of the expressway; prevent unplanned growth.
- **Structured Development** – Linear + multimodal urban pattern based on land capability & location advantages.
- **Environmental Preservation** – Safeguard rivers, canals, drains, forests & water bodies with green belts.
- **Economic Development** – Position as an industrial hub with world-class infrastructure.
- **Institutional Support** – Dedicated institutional zone for skilled human resources & industry needs.
- **Support Activities** – Non-manufacturing zone for IT, ITES, R&D, corporate & professional services.

- **Integrated Urban Centre** – Self-sustaining mix of residential, commercial, recreational & institutional uses.
- **Eco-City Development** – Compact high-density growth, public transport, zero-waste, renewable energy, green spaces.
- **Transit Priority** – Strong intercity links (Delhi/NCR) + efficient intracity public transport systems.

8.5.1. Concept of Development

The development concept for the Agra Urban Centre is shaped by several key factors, drawing on lessons learned from other new town developments, urban centres planned by YEIDA and contemporary urban planning approaches. These influencing factors include:

- **Environmental Sensitivity:** Presence of Yamuna & Karawan rivers, floodplains, drains, and canals.
- **Regional Context:** Proximity to Noida International Airport, YEIDA Phase-I, Raya UC, Tappal-Bajna UC, Mathura-Vrindavan, Hathras, Aligarh & Firozabad.
- **Expressway Connectivity – Yamuna Expressway with interchanges at Khandauli & Kuberpur (16 km apart).**
- **National Highways – NH-509 & NH-21 crossing through site, NH-02 abutting site.**
- **DFC Proximity – Eastern Dedicated Freight Corridor (New Tundla station) supporting industrial growth.**

These factors have led to the following key design and conceptual features for the Agra Urban Centre:

- **Linear Corridor Development** – Along Yamuna Expressway with 3–4 km influence zone.
- **Economy Generation** – Land for industries & tourism as primary economic drivers.
- **Strategic Industrial Placement** – Eastern end, near EDFC station & NH-02.
- **Specialized Tourism Zone** – MICE, skill development, education, training & innovation.
- **Office Zone** – IT, ITES, finance, corporate offices & professional services.
- **Residential Development** – For 16.5 lakh population by 2041, near employment hubs.
- **Integration of Existing Settlements** – Abadi areas contained with 18 m peripheral roads & planned expansion.
- **Upgraded Infrastructure in Abadis** – Urban-level physical & social infrastructure.
- **Hierarchical Road Network** – Roads of 100m, 80m, 60m, 45m widths; integrated with existing network.
- **Expressway Cross-Connectivity** – Grade separators for smooth cross-movement.
- **Sustainable Transportation** – Dedicated ROW for public transport, pedestrians, cyclists.
- **Balanced Land Use** – Industrial, residential, recreational & social facilities.
- **Recreational & Socio-Cultural Amenities** – Parks, cultural centres, community spaces.
- **Environmental Conservation** – Protect canals, drains, ponds & forests.
- **Mixed-Use Zone** – Walk-to-work model with integrated non-polluting activities & housing.

8.6. Plan Structure

The Agra Urban Centre is planned on a grid layout, with primary roads aligned northwest–southeast and secondary roads intersecting north–south, creating clearly defined sectors. Grade separators will ensure smooth traffic flow across the Expressway. The vision is to develop a self-sufficient, comprehensively planned urban centre. The city's form is shaped by its strategic location along the Yamuna Expressway, with NH-509 and NH-21 traversing the site and NH-02 on its southern periphery, while the Karwan River divides the site into two parts. A 500 m buffer on both sides of the Karwan will safeguard surrounding land uses.

City-level commercial and institutional facilities are placed along both sides of the Expressway, linked through underpasses to form a central hub and distinctive identity. Two major mixed-use zones in the northeast and southeast quadrants, accessible from the Tappal and Bajna interchanges, will integrate non-polluting economic activities with residential development. Tourism and industry are key economic drivers, with two tourism zones planned: one accessible from the Khandauli interchange via an 80 m road, and another near the Yamuna Expressway–NH-21 junction, adjacent to the Chaugan Reserve Forest and buffered by the Karwan River.

The industrial zone is in the southeast, near the Eastern Dedicated Freight Corridor station at New Tundla, and is divided into general and multiple-use categories. The latter will be concentrated between NH-509, NH-21, and the Yamuna Expressway, especially around the Khandauli interchange. A hierarchical road network will provide efficient connectivity across all industrial areas, supporting both freight movement and economic growth.

8.6.1. Industrial Area

A significant portion of the Agra Urban Centre, totalling 3026 hectares, is designated for Multiple Use Industrial development, reflecting the area's potential as a key economic driver. Despite existing industrial activity in the surrounding region and the planned Integrated Manufacturing Zone in Agra, the AUC possesses unique advantages that position it for further industrial growth. The existing industrial profile of Agra, combined with the AUC's planned excellent connectivity to the Eastern Dedicated Freight Corridor (EDFC) at New Tundla, is expected to attract a diverse range of industries. The industrial zone is strategically located, providing convenient access and minimizing commuting distances by distributing industrial work centres throughout the city.

8.6.2. Tourism Zone

678.46 Hectares of land is proposed as tourism zone, along with tourism areas in Commercial, Mixed-Use and Recreational Green land use category, totalling to 950 Hectares. Two tourism zones are envisioned along the Yamuna Expressway, each offering a distinct experience. The first zone will be easily accessible from the Khandauli interchange via a proposed 80-meter-wide road, providing convenient access for travellers. The second zone will be situated near the intersection of the Yamuna Expressway and NH-21, offering a more nature-immersive experience adjacent to the Chaugan Reserve Forest and carefully managed buffer zone of the Karwan River.

8.6.3. Residential Development

The residential sectors are distributed across the northwest, northeast, and close to industrial and tourism zones of the Urban Centre, ensuring proximity to work centres. Housing will include **medium-density (<500 DU/ha)** and **high-density (≥500 DU/ha)** sectors, with higher densities concentrated along the Expressway and near city-level institutional and commercial facilities.

Each sector will be equipped with a hierarchical system of community and sector-level amenities, including schools, dispensaries, shopping centres, open spaces, parks, and playgrounds. While the Land Use Map-2041 depicts city-level facilities, the detailed sector layouts will incorporate community-level facilities in accordance with established planning norms.

8.6.4. Recreational Zone

The recreational framework integrates **existing forests, rivers, canals, and natural drainage systems**, preserving ecological features within urban design. Green corridors and buffer zones with native plantations will run alongside these blue infrastructure elements, enhancing biodiversity, water quality, and flood resilience. This interconnected system of **green and blue infrastructure** not only provides leisure opportunities but also strengthens ecological health, with most facilities located near environmentally sensitive areas.

8.6.5. Transportation

A comprehensive transportation plan supports both passenger and freight movement, aligned with anticipated growth. The hierarchy includes:

- **Arterial Roads**: 100m and 80m wide, for high-volume traffic.
- **Sub-Arterial Roads**: 60m and 45m wide, connecting arterial roads with local networks.
- **Collector & Local Roads**: to be detailed in sector plans.

The network builds on **Yamuna Expressway, NH-509, NH-21, and NH-19**, with **Etmadpur Road** slated for widening. Cross-connectivity will be enabled via existing and proposed **grade separators**, with additional ones along the Expressway.

Public transport will be prioritized with **dedicated corridors on arterials**, integrated with pedestrian and cycling paths. A **Multi-Modal Transport Hub (MMTH)** is proposed near the **Khandauli Interchange**, while a **Multi-Modal Logistics Hub (MMLH)** is planned near the **Kuberpur Interchange and EDFC station at New Tundla**, ensuring efficient passenger and freight movement.

9. POPULATION PROJECTIONS

Population projections for greenfield areas are essential for determining requirements for physical infrastructure (roads, water supply, sewerage, power), social infrastructure (schools, hospitals, recreational spaces), and economic facilities. Population projection refers to the systematic estimation of future population size and composition based on available demographic information. It plays a vital role in planning and policymaking, as variations in population directly influence economic development, resource distribution, and the provision of social services.

In greenfield projects such as the Agra Urban Centre (AUC), population projection is primarily guided by planned land-use patterns, proposed housing capacity, anticipated employment generation, and expected migration trends rather than past population growth. Factors including availability of residential units, economic opportunities, transportation connectivity, and proximity to established urban areas significantly shape population growth in such developments.

9.1. Projected Population of the Urban Centre

As the Agra Urban Centre (AUC) is predominantly a greenfield urban area, population projections are not solely derived from existing population levels and historical demographic trends. The strategic locational advantage of AUC along a high-speed transport and logistics corridor requires envisioning the urban centre as a future hub for green and white industries, tourism, and logistics. These key growth drivers are expected to contribute to significant population growth. Accordingly, it is projected that by the year 2041, AUC will accommodate approximately 16.5 lakh population. The proposed economic activities within AUC are anticipated to be a major determinant of population growth, as discussed in the subsequent section.

The estimation is based on identification of key economic activities for AUC, their break up, approximate space demand and worker population accommodated in the key economic activities. Once the direct jobs are determined, indirect jobs have been calculated by applying a suitable factor, subsequently revealing the total population based on WPR.

9.1.1. Key Economic Activities and Employment Opportunities

The Agra region holds significant economic potential driven by its strategic location, rich cultural heritage, and growing infrastructure. As a prominent hub in Uttar Pradesh, Agra offers opportunities across multiple sectors, including tourism, manufacturing, agriculture, and trade.

As detailed in the SWOT analysis (Chapter 7), Agra Urban Centre (AUC) possesses substantial strengths, including strategic locational advantages, strong regional and inter-regional connectivity, fertile agricultural land, rich cultural heritage assets, and a young workforce. These attributes position AUC as a potential growth centre for industrial development, logistics, tourism, and agro-based activities. Additionally, opportunities arising from ongoing and proposed infrastructure investments, coupled with supportive policy response of the State and Central Governments, have significantly enhanced the prospects of AUC emerging as a major regional growth node.

However, certain critical weaknesses constrain this growth potential, notably inadequate basic infrastructure, groundwater depletion, environmental risks, and existing skill gaps. Environmental degradation and infrastructure deficits further aggravate regional vulnerabilities, including those affecting AUC. Addressing these challenges will require strategic planning, targeted infrastructure investments, and sustainable resource management. With a balanced and integrated development approach, the region can evolve into a resilient and vibrant urban centre that harmonizes industrial growth, agriculture, and tourism.

The studies for identifying the key sectors for Agra Urban centre has been carried out in multifaceted manner involving study of published statistics and reports, analysis of investment trends in the region, economic attractiveness analysis and interview with key industrial and infrastructure departments of the government.

Table 9-1 Potential Key Economic Activities in Agra Urban Centre from various studies and analysis

Based on fast growing sectors in Uttar Pradesh[1]	**Based on labour pool potential in Agra district**[2]	**Based on Investments of Govt of UP around Agra Urban Centre**	**Based on Economic Attractiveness Analysis of Agra district**	**Based on Interviews with industries and infrastructure departments of Govt of UP**
Waste collection treatment & disposal	Manufacture of footwear	IT services	Tourism & Culture	Manufacturing
Crop and animal production	Manufacture of other food products	Defence and aero products manufacturing		Agro processing
Publishing activities	Manufacture of communication equipment	Leather & footwear		Leather & handicrafts
Other manufacturing	Manufacture of general-purpose machinery	Agro based products		Light manufacturing
Manufacturing of coke and refine petroleum	Photographic activities			Defence aero parts

[1,2] Annual Survey of Industries, Uttar Pradesh 2019-20

[2]

Based on fast growing sectors in Uttar Pradesh[1]	Based on labour pool potential in Agra district[2]	Based on Investments of Govt of UP around Agra Urban Centre	Based on Economic Attractiveness Analysis of Agra district	Based on Interviews with industries and infrastructure departments of Govt of UP
Electricity, gas, steam supply	Manufacture of special-purpose machinery			logistics
Manufacture of furniture	Sale, maintenance and repair of motorcycles and related parts and accessories			
Manufacturing of electronic, computer, optical products	Casting of metals			
Manufacture of machinery and equipment	Manufacture of wearing apparel, except fur apparel			
Manufacturing of leather & related products	Manufacture of other fabricated metal products; metalworking service activities			

9.1.2. Target Sectors and Markets in Agra Urban Centre

Based on the various studies and analysis in the sectors of infrastructure, connectivity and economy, the following sectors have shown promising potential in the Agra Urban Centre.

1. **Manufacturing**: Manufacturing industries in metal fabrication, metal casting, motorcycle part, general purpose machinery etc occupy key labour pool skill in the Agra district, hence the Agra Urban centre would provide infrastructure facilitated industrial space for the same.

2. **Food processing industries:** Manufacturing of the food products is also an area of labour pool skill in the district. The food manufacturing industry is labor-intensive, providing direct and indirect employment to thousands of people in the Agra region.

The industry fosters the growth of small- and medium-scale enterprises engaged in food processing, dairy products, confectionery, and packaged snacks.

3. **Leather and handicrafts:** The leather industry in Agra has a rich historical legacy. Agra accounts for large proportion of India's total leather footwear production, making it a leading hub in the country. It produces a wide range of products, including formal shoes, sandals, boots, and designer footwear. Bags, belts, wallets, and jackets are other notable products manufactured in the region.

4. **Apparel:** The labour force potential analysis of Agra district also shows a high inclination towards apparel manufacturing activities. It was also confirmed during the stakeholder workshop that apparel and textile park and sportswear manufacturing are of key interest in Agra.

5. **Logistics and warehousing:** The proposed **Agra Urban Centre** has immense potential to become a major hub for **logistics and warehousing**, driven by its strategic location, robust connectivity, and the presence of complementary industries such as **manufacturing and agro-based industries**. As industries expand in and around Agra, the demand for efficient supply chain operations will grow significantly, positioning the region as a critical node in India's logistics ecosystem.

6. **ITES industries:** The Agra urban centre presents immense potential for the **Information Technology Enabled Services (ITES)** industry, backed by the proactive investments and initiatives of the Government of Uttar Pradesh in the IT sector. The Government of Uttar Pradesh has prioritized IT and ITES development through various initiatives under its **IT and Startup Policy**.

7. **Hospitality & Recreational:** The Agra urban centre holds tremendous potential for the **hospitality sector and recreational activities**, leveraging Agra's status as a globally renowned tourism hub. With its rich cultural heritage, including the Taj Mahal, a UNESCO World Heritage Site, and its proximity to major economic corridors, the greenfield urban centre can serve as a modern extension to Agra's tourism ecosystem, offering enhanced infrastructure, accommodation, and entertainment opportunities.

   Luxury and Mid-Range Hotels, Resorts and Eco-Stays, MICE Tourism (Meetings, Incentives, Conferences, and Exhibitions) are key hospitality sectors that hold potential in Agra Urban Centre.

   The Agra Urban Centre lies in the Taj Trapezium Zone. Hence the specific choice of industries within these sectors must be compliant with the TTZ regulations

9.2. Development of Zones

The Agra Urban Centre is envisioned as a hub of economic activities that draws from the economic and cultural potential of Agra city. The urban centre is envisioned to be composed of the following zones:

A. Economic Zone (Industry and Tourism)
B. Residential Zone
C. Commercial Zone
D. Green Spaces
E. Transportation & logistics
F. Other uses (Utilities, PSP etc.)

The details under each zone have been provided in the Chapter 10 that is " Proposed Land Use Plan".

9.2.1. Economic Zone

The Agra Urban Centre is envisioned as a hub of economic activities that draws from the economic and cultural potential of Agra city. The Economic zone would house the economic activities planned for Agra Urban centre. The sectors with potential have already been established from previous studies. The Economic zone is envisioned to house primarily two categories of economic activities:

Industries

- Manufacturing
- Leather & Handicrafts
- Food processing
- Apparel and Sports wear
- Sports Goods
- IT & ITES
- Warehousing & storage

Tourism & Recreational

- Theme Parks & related activities
- Adventure and amusement park
- Hotels & Resorts
- Convention & Exhibition Centre related activities
- Wellness tourism activities
- Eco tourism and river front recreational/ adventure activities

The urban centre comes under the Taj Trapezium Zone which imposes high restriction on industrial development. In parallel tourism and culture has emerged as a major potential in the region. Hence tourism economy has been proposed as a significant share of the economic zone.

9.2.2. Industries In Economic Zone

The industries in Agra Urban centre must comply with the regulations of the Taj Trapezium Zone.

The NEERI report emphasizes the importance of regulating industrial activities within the Taj Trapezium Zone to preserve the integrity of the Taj Mahal and surrounding heritage sites. By permitting only non-polluting industries and enforcing the adoption of cleaner fuels, the guidelines aim to balance economic development with environmental conservation in Agra.

For industries with air pollution score between 11-20, the state pollution board would provide consent after the evaluation of the project details. For industries with air pollution score more than 20, state pollution control board along with NEERI would evaluate the project details for consent for establishment of the industry in question.

It hence arrived to preferably propose industries with air pollution score within 20 in the Agra Urban Centre.

9.2.2.1. INDUSTRIES MIX

Based on the above guidelines, the following industries are preferred in the Agra Urban centre.

1. **Manufacturing**

The industries under this category can support the ancillary industries of aero and defence industry like metallic, non-metallic, and composite parts for engines, airplane interiors, and aero structures.

2. **Food Processing**

The industries under this category support Non- Polluting Agro based & food processing units such as sweets and packaged snacks, Milk Pasturing Plants, Milk Collection Centre, etc.

3. **Leather & Handicrafts**

The industries under this sector would support the leather and handicrafts sector in Agra. The part of leather industry which is permitted is assembly, stitching, warehousing etc., barring the tanning part which causes pollution.

4. **Warehousing**

Warehousing and cold storage facilities are critical components of the supply chain, playing a vital role in supporting manufacturing and food processing industries. By ensuring the safe storage and efficient distribution of raw materials and finished goods, these facilities enhance productivity, reduce waste, and improve the overall operational efficiency of industries.

5. **IT & ITES Industries**

IT and ITES industries are proposed in the Agra Urban centre. These industries are not categorised under any specific pollution category. EIA clearance would be required for such industries.

9.2.2.2. TOURISM & RECREATIONAL ACTIVITIES IN ECONOMIC ZONE

The proposed **Tourism and Recreational Zone** in the Greenfield Agra Urban Centre aims to transform the region into a premier destination for entertainment, leisure, and business tourism. Envisioned with a world-class **theme park**, luxury hotels, and state-of-the-art convention and exhibition centres, the zone leverages Agra's global prominence as a cultural and historical tourism hub to diversify and elevate its appeal.

Core Features of the Zone

a. Theme Park

Inspired by the success of global attractions like Disneyland and Universal Studios, the theme park will serve as the centrepiece of the tourism zone.

b. Luxury Hotels

A range of **five-star and boutique hotels** will cater to both leisure and business travellers.

c. Convention and Exhibition Centres

World-class facilities will position the urban centre as a hub for Meetings, Incentives, Conferences, and Exhibitions (MICE)

9.2.3. Space Demand for Various Zones

The Agra urban centre is being developed as a urban centre with major economic activities. As such the guidelines for landuse structure for industrial towns as per URDPFI has been followed to arrive at the tentative land distribution between the zones.

Table 9-2 Preliminary land allocation of various zones; Source: Consultant Analysis based on URDPFI Guidelines

Sl	Zone	Percentage	Extent (ha) *(Considering 14480 Ha developable area of Agra Urban Centre)*
1	Residential	25%-28%	3620 - 4054
2	Economic Zone (Industrial, Tourism & Recreational activities)	33%-35%	4344 - 5068
3	Commercial	5%-7%	724 - 1013
4	Green Spaces	15%-20%	2172 - 2896
5	Transportation & Logistics	11-13%	1590 - 1882
	Sub Total		
	Other uses (Utilities, PSP)		1000 - 1500

ECONOMIC ZONE

The econmic zone follows 'industrial' category as per the URDPFI and about 25% of the Agra Urban centre is proposed to be classified as 'Economic Zone'. This would consist of both the industrial activities as well as the 'tourism & recreational activities'.

Tourism & Recreational Activities:

The theme park and adventure zone is conceived as a large scale immersive entertainment zone. A Study of similar world class theme parks like Disneyland USA or Universal studios which are model developments of large-scale entertainment and tourism reveal that both have been developed on 150 – 200 Ha of land consisting of theme parks, green spaces, water bodies, theme hotels, parking spaces and mass transit connectivity.

Number of Hotel Keys (rooms) required in Agra Urban Centre

Agra has 13 luxury hotels including signature luxury and other luxury properties. Of these most of them are located around Tajganj, civil lines and Fatehabad Road. While Agra has a decent number of hotels, the city does face a shortage—particularly in the 3–5-star segment—during peak season, driven by heavy domestic and international demand centred around the Taj Mahal. Agra faces shortages of rooms especially.

Table 9-3 Footfall and Hotel Keys Demand during Peak Tourist Months; Source: UP Tourism Department Data and FHAI Norms

	No. of Visitors/ day	Visitors who stay in Agra (50% as per norms)	Visitors Opting for luxury stay	No. of rooms (double occupancy)	Number of Hotel Rooms in Agra (3,4- and 5-Star Hotels)	
Total	288,000	144,000	30240	15120	Category	No. of rooms
Indian (90% of visitors)	259,200	129,600	25920 (2% of visitors)	12960	5 stars	1612
Foreigner (10%)	28800	14,400	4320 (30% of visitors)	2160	3 & 4 Star	6300

Considering the shortfall of about 7000 rooms in Agra during the peak season, it is proposed that 40% of this shortage will be catered by the Agra Urban Centre. Additionally, 1000 more rooms will be required to address the needs of visitors for the MICE, adventure and eco-tourism. In total, 3800-4000 rooms are proposed under star category hotels (3,4, and 5), spa and wellness resorts and business hotels.

The hotel and resorts and tourism activities have been allocated a total area of about 900 Ha. The tentative land use structure for the tourism activities can be as follows:

Table 9-4 Tentative Caption of Land use Structure for Tourism Activities

SL	Development Type	Extent (Ha)	Broad Land use Category
1	Golf Course and resort	150	Recreational Green
2	Convention, conference and exhibition centre	50	Tourism
3	Amusement park and theme park	300	Tourism
5	Eco resort	100	Recreational Green
6	Spas and Wellness Centre	100	Tourism
7	Heritage Village and cultural complex	50	Tourism
8	Luxury Hotels	200 ha	Tourism/ Commercial
	Total	**950 ha**	

Industries:

Around 3000 -3500 Ha of land is proposed under the industrial activities.

Table 9-5 Area proposed under industrial activities

Sl	Sectors	Extent (Ha)
1	Food processing	400
2	Leather & handicrafts	400

3	Light manufacturing	400
4	ITes industries	500
5	Textile & Apparel Park	400
6	Sports goods Park	200
	SUB -TOTAL	**2300**
7	Logistics & warehousing (proposed under transport zone)	500
8	Luxury and budget hotels (proposed under mixed use, tourism, commercial zones)	200
	TOTAL	3000

9.3. Estimated Job Generation

The proposed **Agra Urban Centre** is expected to catalyse economic growth by hosting a diverse range of industries and services. Employment generation in this new urban hub has been estimated using **job density metrics**, which align workforce projections with the spatial allocation of land and the specific requirements of various industrial activities.

Table 9-6 Direct jobs generated in Agra Urban Centre (Total estimated for the year 2041)

Sl	***Sectors***	***Extent (Ha)***	***Job generation rate per Ha***	***Jobs generated***	***Remarks***
	INDUSTRIES				
1	*Food processing*	*450*	*100*	*33,750*	*URDPFI industrial worker density of 100 jobs/ Ha; development density 75%*
2	*Leather & handicrafts*	*450*	*100*	*33,750*	
3	*Light manufacturing*	*400*	*100*	*30,000*	
4	*Textile –apparel park*	*450*	*100*	*33,750*	
5	*Sports goods Park*	*200*	*100*	*15,000*	
6	*IT industries*	*500*	*500*	*1,00,000*	*20 sqm per worker, i.e. 500 jobs per Ha; 40% development densit*
7	*Logistics & warehousing*	*500*	*153*	*30,600*	*65 sqm per worker, i.e. 153 jobs per Ha; 40% development density*

	Sub Total	***3000***		***2,76,850***	
Sl	***TOURISM***				
1	*Luxury & Budget Hotels*	*200*	*200*	*6,000*	*As per FHRAI*, 200 employees per 100 rooms; for 3000 keys, employment generated*
2	*Golf course*	*150*	*50*	*7500*	*Based on best practices, case examples*
3	*Convention, Conference & Exhibition Centres*	*50*	*50*	*2500*	
4	*Amusement park and theme park of international standard*	*300*	*50*	*15000*	
5	*Eco resorts*	*100*	*50*	*5000*	
6	*Spas and Wellness Centres*	*100*	*50*	*5000*	
7	*Heritage Village and cultural complex*	*50*	*50*	*2500*	
	Sub total	***950***		*43,500*	
	Total jobs generated			*3,20,350* **~ 3 lakhs**	

The total direct employment generated in Agra Urban Centre is about 3 lakhs from the various economic activities proposed. A factor of 2.25 is considered as the rate of generation of indirect jobs. About 6.95 lakh indirect jobs are generated in the Agra Urban centre. Total employment generated is about **10 lakhs.**

Table 9-7 Employment generated in Agra Urban Centre (estimated for the year 2041)

Sl	***Description***	***Job estimate***	***Remarks***
1	Total direct jobs generated	3 lakhs	
2	Indirect jobs (direct: indirect jobs = 1:2.25)	6.75 lakhs	Indirect job creation ratio: 2.25 for construction industry;

			2.68 in IT sector as per labour and employment statistics 2022, Ministry of Labour & Employment 2.25 is considered (conservative estimate)
3	Total employment generated	9.75~ 10 lakhs	

9.3.1. Induced Population

The induced population is calculated considering employment generation of 10 lakhs and a workforce participation ratio of 43.5% (Workforce Participation Ratio in Uttar Pradesh as per PLFS Annual Reports, MoSPI). The total induced population due to the job created in Agra Urban Centre is about 23 lakhs. Since The Agra Urban centre has excellent connectivity with Agra city, Etmadpur and Mathura, large part of the population would be accommodated within these cities. The Agra urban centre will accommodate about 65-70% of this population which is about 13.8 to 14.9 Lakhs as resident population.

Table 9-8 Induced Population Accommodated in Agra Urban centre (estimated for the year 2041)

Description	**Estimate**	**Remarks**
Total employment generated	10 lakhs	This would be the working population in the Agra urban centre.
Work participation ratio	43.5%	WFPR in UP Source: PLFS Annual Reports, MoSPI
Total Induced Population	22.98 lakhs ~ 23 lakhs	
Induced Population Accommodated in Agra Urban centre	13.8 to 14.9 lakhs	Assumption, that 65-70% of the population would be accommodated in the Agra Urban Centre and some portion would be residing in the nearby places like Agra, Mathura & Etmadpur

9.4. Total Population in the Agra Urban Centre

The projected population in the village pockets for 2041 is 2.8 lakhs. Considering the existing work participation rate in the villages (48%), the workforce available in 2041 would be about 1.2 lakhs. It is assumed that an 80% of this village workforce would be employed by the direct and indirect jobs provided by the Agra Urban Centre.

Table 9-9 Total population in Agra Urban Centre (Estimated for the year 2041)

Description	Estimate
Induced Population Accommodated in Agra Urban centre	13.8 to 14.9 lakhs ~ 14lakhs
Projected population in village pockets	2.87 (Average)
Total population in the Agra Urban Centre	16.8 ~ 16.5 lakhs

Table 9-10 Phase-wise population in Agra Urban Centre (Estimated for the year 2041)

	Phase 1	***Phase 2***	***Phase 3***	***Remarks***
Induced population accommodated in AUC	618,647	684,596	197,847	It is assumed that Industrial dev in Phase 1- 40%, Phase 2-45%, Phase 3 - 15% tourism area dev: Phase 1: 50%, Phase 2-50%
Population in abadi areas	57,600	28,800	57,600	
Total Population accommodated in AUC	676,247	713,396	255,447	

Table 9-11 Floating Population in Agra Urban Centre (estimated for the year 2041)

Description	**Estimate**
Projected worker's population as floating population commuting from surrounding areas	3 lakhs daily (Out of 10 lakhs total employment generated)
Floating population (tourism and other purpose)	165,000 (10 percent of the induced population)
Total Daily floating Population	465,000

10. PROPOSED LAND USE PLAN

10.1 The Concept of proposed plan development

The proposed land use plan is a comprehensive plan aimed at guiding the orderly growth of AUC in a sustainable, inclusive, and resilient manner. It is based on an assessment of existing conditions, economic potential, projected population growth, and environmental constraints, and seeks to translate the development vision into spatial, and tangible proposals.

The land use plan has been developed underlined by key considerations such as authority's focus to develop it as a primarily industrial centre, with non-polluting white industries as necessitated by TTZ guidelines and multiple use industrial development, ensuring a balanced urban fabric, thereby limiting the need to commute. As a full-fledged town envisaged to house a portion of the workers engaged in AUC, other land uses such as residential, commercial, public-semi-public and mixed land use have been proportionately proposed. Further, since the urban centre is envisaged as an extended tourism hub for Agra city's tourist footfall, ample tourism facilities have been proposed, supported by recreational and blue-green infrastructure, thereby bridging the gap in nearby existing tourism facilities.

The proposed plan emphasizes balanced land use distribution, state of the art transportation and mobility systems, adequate physical and social infrastructure, environmental conservation and reinforcement, and disaster risk reduction. It promotes compact and mixed-use development, and optimal utilization of land and resources while ensuring equity, affordability, and quality of life for all sections of society, integrating existing village *abadis*.

This chapter elaborates the proposed plan, land-use wise. The major proposals regarding tourism, transportation, environment, infrastructure etc. have been elaborated in subsequent Chapter 11.

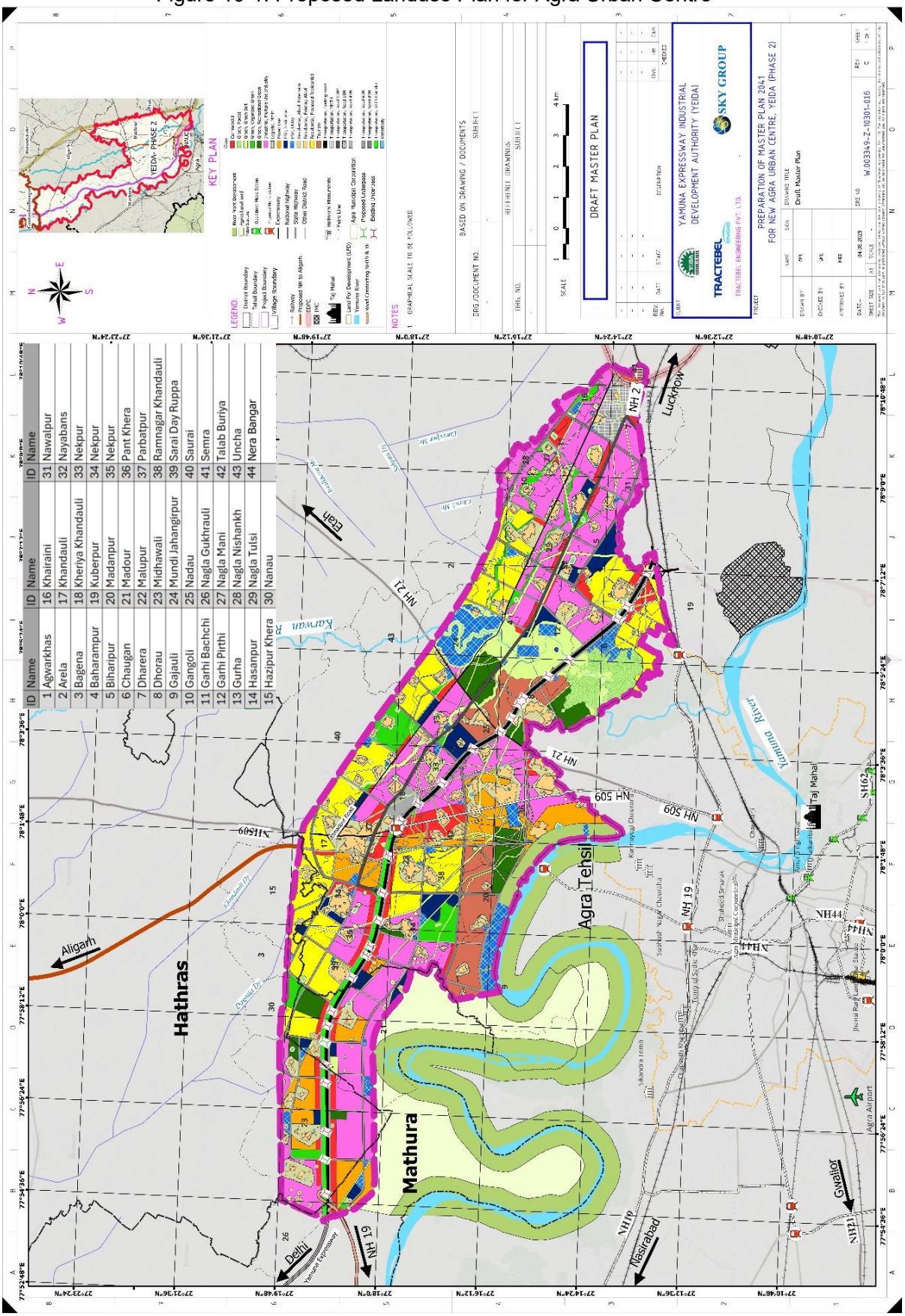
10.2 Land Use Distribution

The master plan for the Agra Urban Centre is designed to accommodate an estimated population of 16.5 lakhs. To achieve this, the total development area has been meticulously divided into various sectors, each with specific land use allocations that follow a hierarchical order.The planning process adheres to established norms and standards, drawing from a comprehensive study of several key documents and successful urban development models. These include the Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines, the YEIDA Building Regulations, and master plans from other major industrial areas like NOIDA, Greater NOIDA, YEIDA Phase-1, DNGIR, Dholera Investment Region, and Greater Bhiwadi. This careful approach ensures that the new urban center will have a well-balanced distribution of facilities and infrastructure to effectively serve its large, growing population.

Table 10-1 Showing Land use Breakup for Agra Urban Centre; Source: Consultant

Sr. No.	Landuse		Area (Ha.)	Percentage
1	Residential	Existing Abadi	771.29	5.33
		Abadi Extension	878.21	6.06
		Proposed Residential	1878.14	12.97
			3527.65	**24.36**
2	Commercial		**648.24**	**4.48**
3	Industrial	Multiple use Industry	**3025.21**	**20.89**
4	Mixed Use		**812.62**	**5.61**
5	Tourism		**680.72**	**4.70**
6	Public- Semi Public	Institution	430.60	2.97
		Utility	603.84	4.17
			1034.44	**7.14**
7	Green	Organized Green	420.14	2.90
		Recreational Green	460.08	3.18
		Green Belt	1138.94	7.87
		Forest	306.47	2.12
			2325.63	**16.06**
8	Transportation	Existing Road	387.65	2.68
		Road 18M	229.60	1.59
		Road 45M	115.60	0.80
		Road 60M	733.31	5.06
		Road 80M	353.96	2.44
		Road 100M	198.15	1.37
		RRTS Corridor	116.82	0.81
		MMTH	54.13	0.37
			2189.22	**15.12**
9	Logistic	MMLH	**158.84**	**1.10**
10	Waterbody		**78.02**	**0.54**
	Total Area		**14480.61**	**100**

Figure 10-1: Proposed Landuse Plan for Agra Urban Centre



Source: Consultant

10.3 Land Use Zoning Proposals and Policies

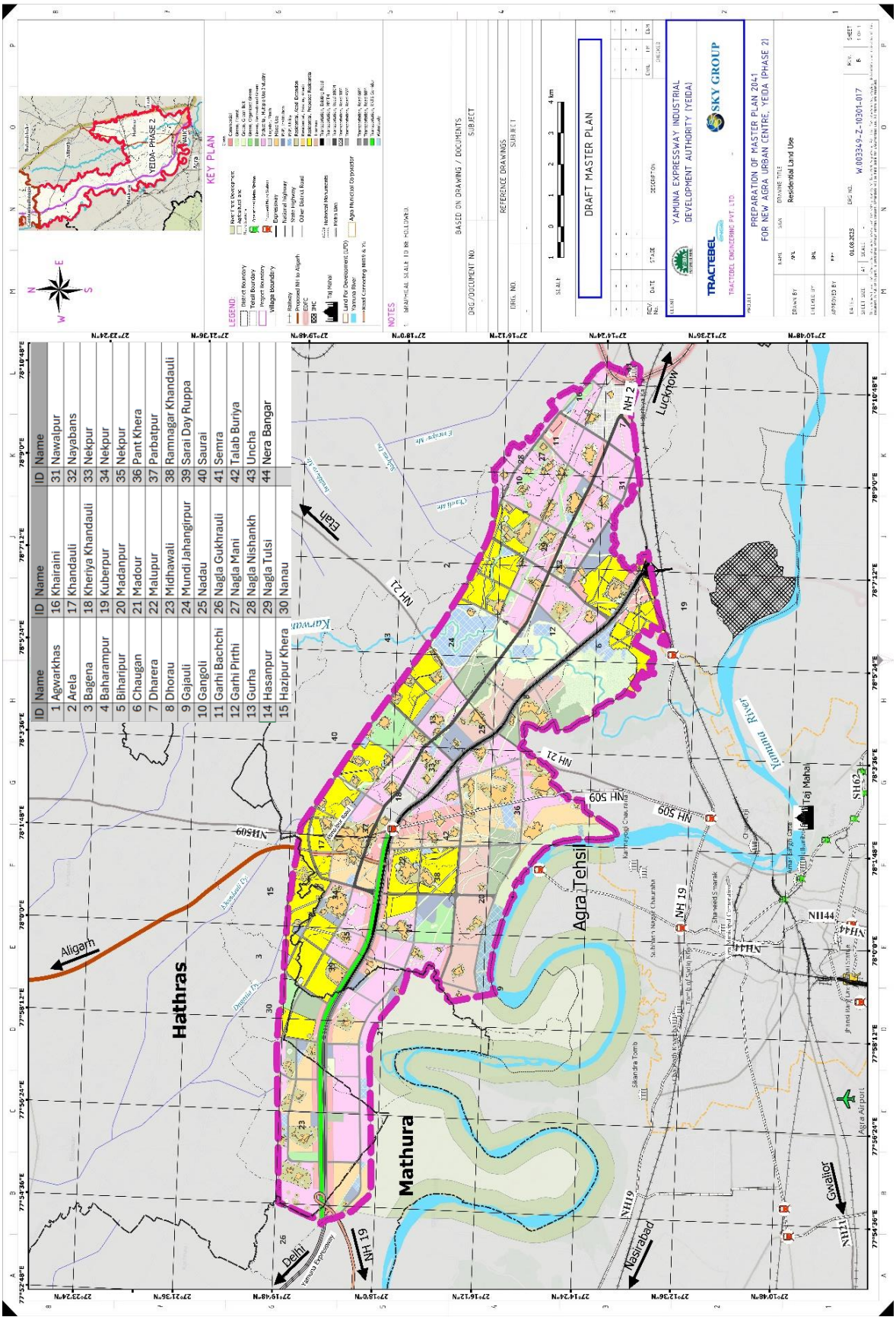
10.3.1 Residential Development

The residential development encompasses 1878.14 hectares (12.97%) of the urban centre, organized into distinct sectors designed to accommodate a projected population of 16,50,000, resulting in an average residential density of 878 persons per hectare (PPH). Residential sectors are proposed in the North-West of the planning area and are well approached from proposed 100 mt. & 80 mt. wide arterial roads and connected through 60 mt. & 45 mt. wide road. These sectors are strategically located on both sides of the expressway, ensuring convenient access to various work centres, particularly industrial areas, via walking, cycling, and public transportation.

A key planning principle is the development of residential pockets at varying densities, ranging from medium (below 500 ppha) to high (500 ppha and above). While the specific mix of low, medium, and high-density development will be finalized at the layout level, guided by the overall city density, the current master plan envisions higher-density sectors concentrated in the city centre and around major commercial hubs along the expressway, with medium-density sectors located on the periphery. This distribution strategy aims to optimize access to amenities and employment opportunities.

Furthermore, the residential sectors are designed to promote integrated socio-economic development by providing housing options for diverse income groups, including Economically Weaker Sections (EWS), Low Income Groups (LIG), Middle Income Groups (MIG), and High-Income Groups (HIG). This will be achieved through a mix of housing typologies, such as group housing and plotted development, incorporating both public and private sector involvement. Varying plot and dwelling unit sizes will be offered to cater to different needs. Density and development type within each sector or pocket will be determined based on factors like proximity to work centres. In line with state and authority policies, it is proposed that 10% of the total housing stock be allocated to EWS and another 10% to LIG categories, developed by the Authority. Overall, residential development will adhere to prevailing policies governing such projects.

Figure 10-2 Proposed Residential Development



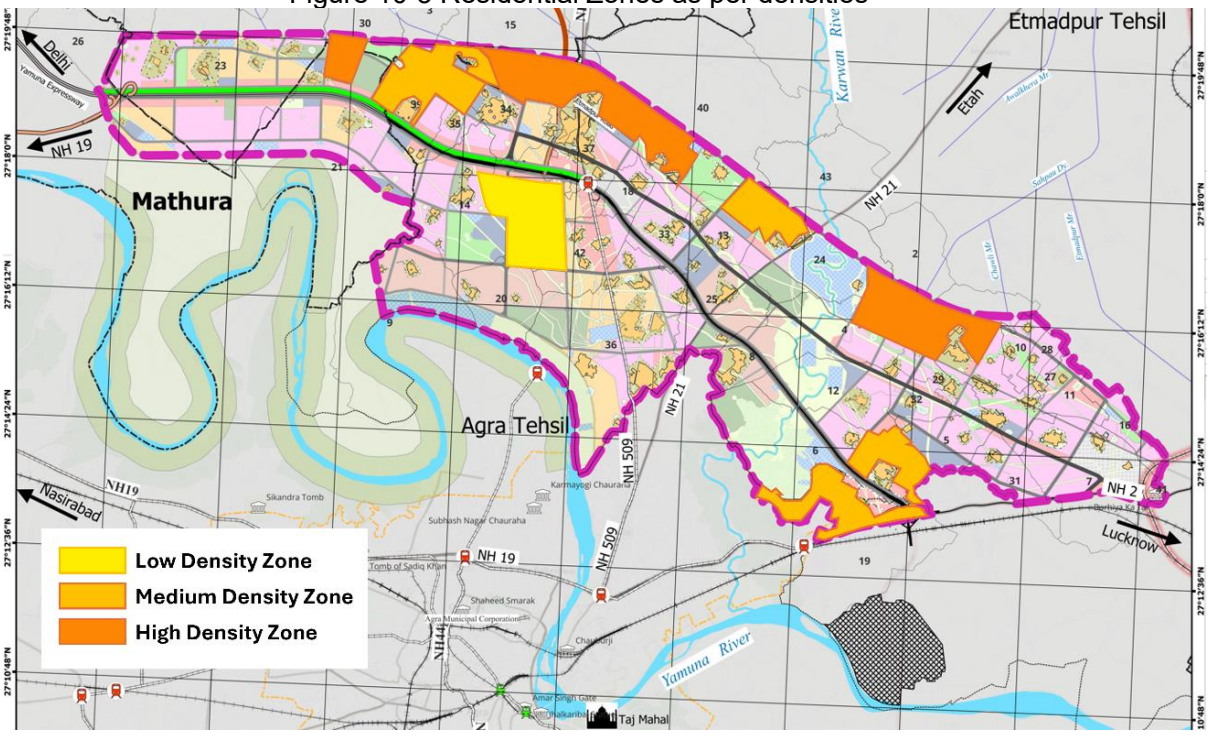
Source: Consultant

The developments in residential zone will follow the URDPFI guidelines and Yamuna Expressway Industrial Development Area Building Regulations,2010. As per the URDPFI Guidelines, residential zones are intended primarily for safe, healthy, and compatible living environments. Accordingly, certain land uses are explicitly prohibited in residential areas due to their adverse environmental, traffic, safety, or nuisance impacts. These include;

- **Polluting and Hazardous Uses: Include** Heavy and medium industries, polluting manufacturing units (including tanneries, chemical units, dyeing units), hazardous and toxic material storage or handling units and explosive and inflammable goods storage.
- **Industrial and Utility Uses Causing Nuisance Include l**arge warehouses, godowns, and freight depots, truck terminals and transport depots, power plants, substations (except small local substations), large utilities, solid waste processing, dumping grounds, and landfills
- **Commercial Uses Incompatible with Residential Living, which include bigger commercial complexes**
- **Environmentally Sensitive and Obnoxious Uses such as s**laughterhouses and meat processing units, crematoria and burial grounds (except where specifically designated) and effluent treatment plants (except decentralized residential STPs)
- **Traffic-Intensive Uses such as bus terminals, railway yards and large logistics and freight handling activities.**

While planning principles emphasise that any use generating excessive noise, air or water pollution, heavy vehicular movement, safety risks, or public nuisance shall not be permitted within residential area, it permits only non-polluting, low-intensity, and community-supportive uses.

Figure 10-3 Residential Zones as per densities



Source: Consultant

Residential densities of the various residential zones and permanent population holding capacity for each of the residential zones has been worked out as under. Every zone shall cater to a suitable mix of LIG, MIG, HIG and EWS housing. Low density residential zone shall majorly accommodate high-end plotted housing. Medium density residential zone shall accommodate a mix of plotted and flatted development. High density residential zone shall accommodate high-rise high-density development. The mix indicated above will govern the sector level planning. However there will be flexibility to define the percentages of HIG, MIG, EWS and LIG at sector level planning stage.

Table 10-2 Residential zone densities and Population Holding Capacities

Density Zone	Area (Ha)	Density (PPH)	Population holding capacity	Floating population
Low density zone	262	200-300	0.5L – 0.8L	0.05L - 0.08L
Medium density zone	811	600-750	4.9L-6L	0.5L – 0.6L
High density zone	804	900-1050	7.2L -8.4L	0.7L – 0.8L
TOTAL	1878		12.6 L – 15.3 L	1.25L – 1.48L

Source: Consultant

Therefore, the urban centre can accommodate 12.6 L to 15.3 L population. Additionally, 10% floating population has been considered, infrastructure provisions for which have been accounted for in infrastructure calculations.

Currently, for the horizon period of 15 years, it is being considered that the people residing in AUC will be working in AUC. Further, 30% workforce of around 3L people will be commuting from outside to AUC. Since the population has been estimated from job generation, space demand for the 3L floating working population is already accounted for. In next revision of the masterplan, that is after 15 years, both side migration of floating population must be considered.

10.3.1.1 EXISTING VILLAGE ABADI & ABADI EXTENSION

To ensure the inclusive development of the area, existing rural settlements will be integrated with the proposed urban development. **This will be achieved through a comprehensive upgrading program that aligns with the prevailing Abadi Development Policy of the State Government and the "Planned Village Abadi Expansion Scheme" guidelines outlined in the YEIDA Building Regulations, or as otherwise determined by the Authority.**

This initiative aims to enhance the quality of life for residents of rural settlements within the urban centre by providing essential physical and social infrastructure. The development of these villages will be carefully planned, and landowners whose land is acquired for this purpose will be compensated with developed plots in return.

To facilitate this process, the Competent Authority will demarcate and verify abadi areas during the preparation and implementation of the Layout Plan. This meticulous approach will ensure the successful integration of rural settlements into the urban fabric, fostering a more equitable and sustainable development model.

Existing Village Abadi with proposed buffer around it constitutes 1649.5 Ha which is about 11.4% of site area. The existing villages are integrated in the land use plan of the Agra Urban Centre (AUC). To prevent villages from expanding on roads and creating traffic problems, a peripheral road 18mt. wide is proposed around abadis and as far as possible, such that the villages are surrounded with planned area, separated from it by an 18-metre-wide road.

The net density of abadi area will be in the range of 400 to 800 PPH, which is a common practice in NCR and Uttar Pradesh. The maximum permitted net density will be 1000 PPH.

Building Regulations as per YEIDA Building regulations are to be followed for future development in villages.

Annexure 1 that is Use Premises Permissible in Use Zones, abadi areas may be utilized for permissible land uses such as Single House/ Plot/Flat, Retail shops, Vending booth, Vegetable/ Fruit market, Milk Collection Centre etc. For detailed list, refer Annexure 1.

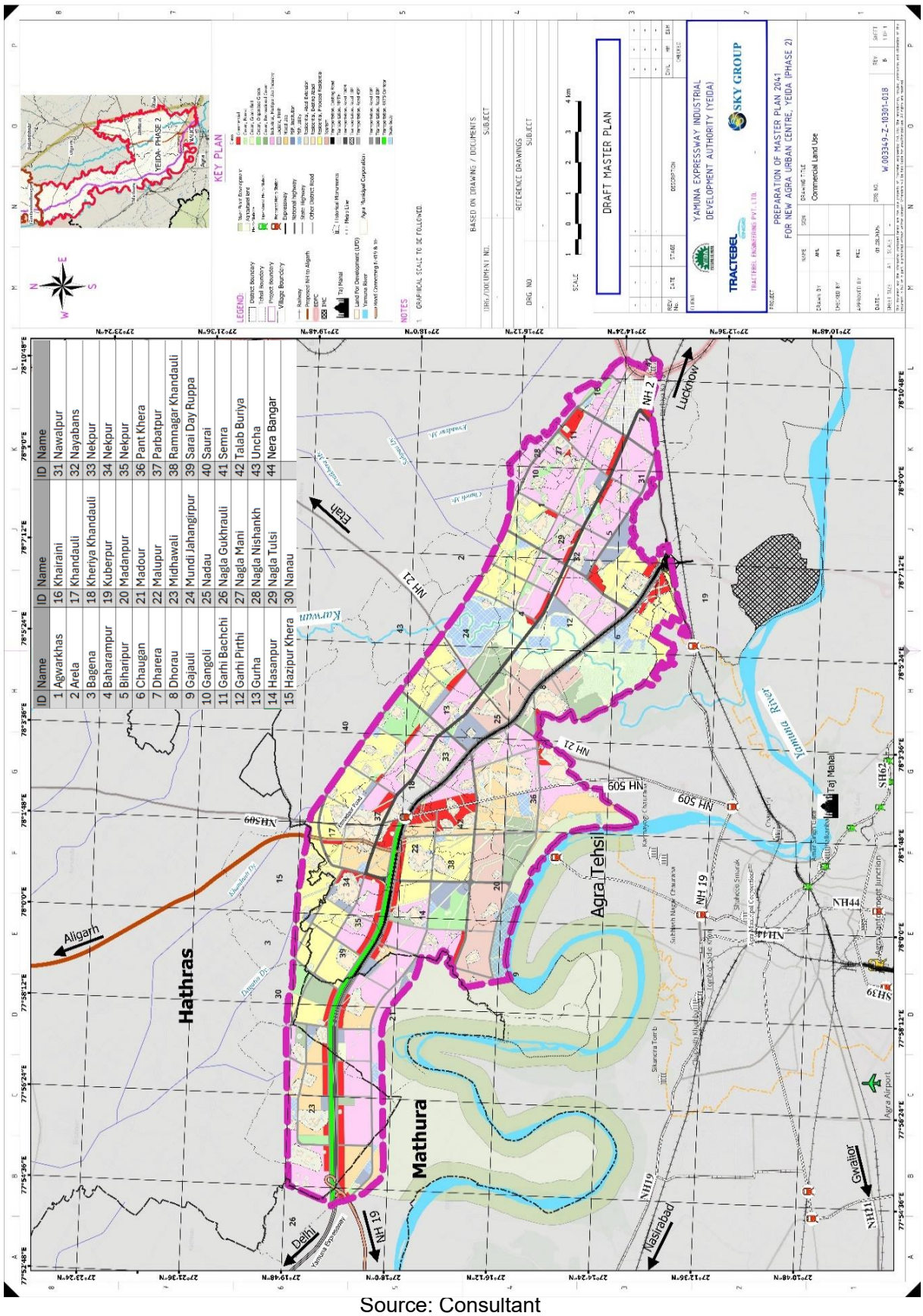
10.3.2 Commercial

The AUC commercial activities are organized within a four-tiered hierarchy: the City Centre, District Centres, Master Plan Commercial areas, and Wholesale/Godown zones. These zones, encompassing a total of 648.24 hectares (4.48% of the urban centre) are strategically distributed throughout the urban landscape. The City Centre, envisioned as the primary commercial hub, is strategically positioned at the urban centre core, spanning both sides of the expressway. This central location ensures accessibility for residents across the city, although internal movement within the City Centre will be facilitated by proposed grade separators. The City Centre will accommodate a diverse mix of commercial uses, including retail, offices, hospitality (hotels and entertainment), wholesale businesses, and storage facilities. Any existing commercial establishment running within the proposed urban centre in any zone other than commercial may be allowed to continue.

In the context of the "Agra Urban Centre" project, commercial land use is expected to play a vital role in maximizing Agra's commercial potential from tourism. The project aims to develop the new city as a major commercial and tourism centre, with a focus on attracting both domestic and international travellers.

For catering this need and for boosting the local economy dedicated commercial zones with star-rated hotels, food and beverage hubs, and other amenities are proposed along the Yamuna Expressway. The area is dedicated for Commercial-Tourism.

Figure 10-4 Proposed Commercial Development



Source: Consultant

10.3.3 Industrial Development

Industrial land use will play a crucial role in the economic development and growth of the Agra urban centre. It will promote employment, revenue generation, trade, and technological advancements, contributing to the overall development of the region. Leveraging the existing industrial base of Agra and industrial proposals like Integrated Manufacturing Cluster (IMC), the Agra Urban Centre possesses significant potential for industrial growth. Therefore, 3025.21 Hectare (20.89% of the urban centre) is allocated for Multiple Use Industry.

10.3.3.1 MULTIPLE USE INDUSTRY

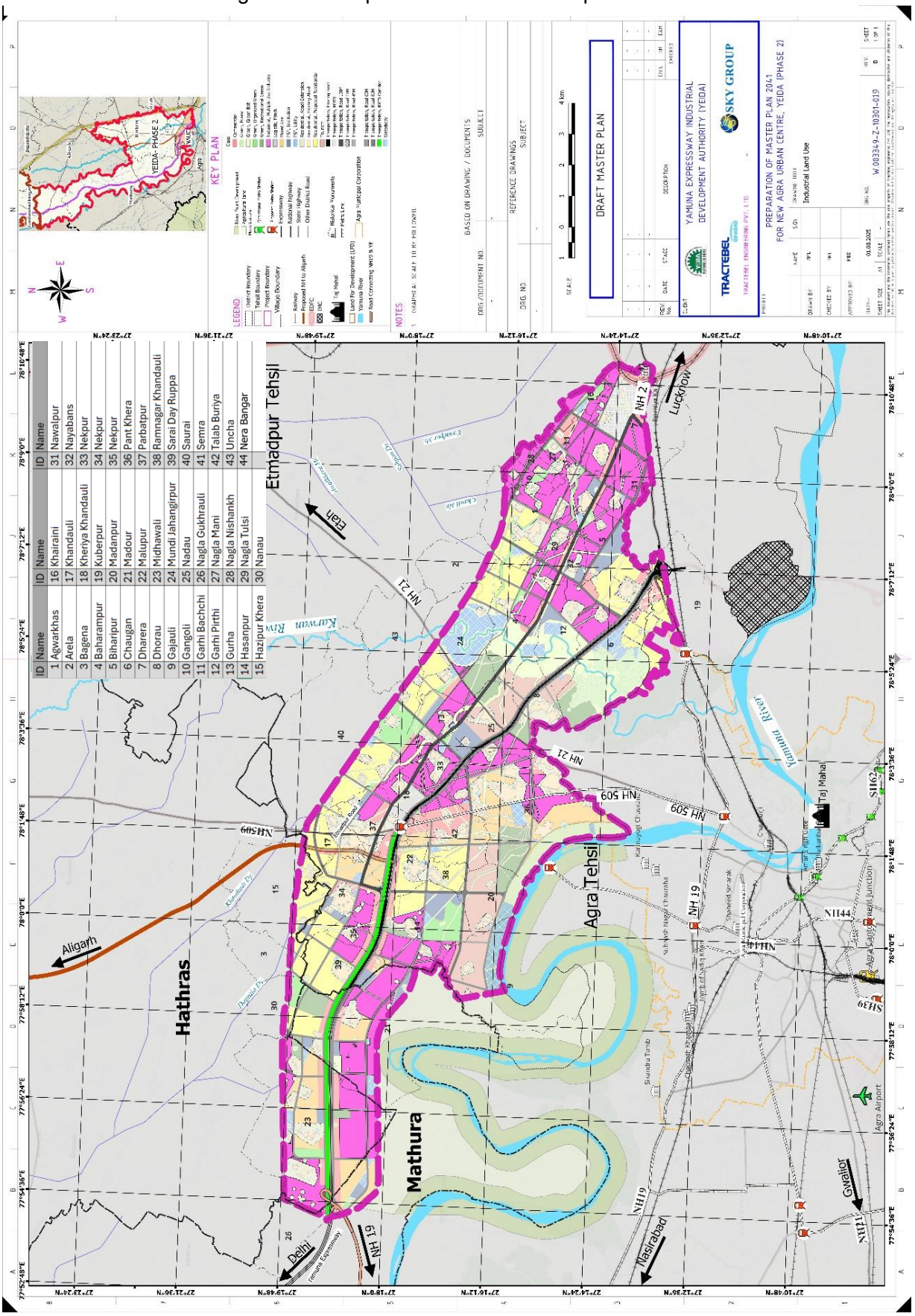
To enhance the functionality and diversity of the industrial zone, a Multiple Use Industry land allocation has been incorporated. Within this designated multiple-use zone, a significant 70% is dedicated to core industrial activities. The remaining 30% is strategically distributed among other complementary land uses. Of the remaining portion, residential development will comprise between 5%-12%, providing housing options for the workforce. Commercial spaces, catering to the needs of businesses and residents, will occupy up to 13%. Finally, institutional uses, such as training centres or research facilities, will account for a maximum of 5%, fostering a comprehensive and vibrant industrial ecosystem.

The proposed industrial areas are strategically spatially distributed, with most of the land allocated along major arterials. This placement ensures direct connections to the existing and planned regional road network and rail network thereby preventing industrial traffic from congesting the city's internal streets. Furthermore, the location of these industrial zones has been carefully considered in relation to prevailing wind patterns. This strategic positioning minimizes the potential impact of any industrial emissions on residential areas, ensuring a healthier living environment for residents.

Only White category Industries listed by MoEF will be permitted in the Agra Urban Centre due to its location within the Taj Trapezium Zone (TTZ). All industries must adhere to TTZ norms and Ministry of Environment, Forest and Climate Change (MOEF) guidelines, ensuring that no pollutants are released. Industrial areas are strategically located primarily in the south-east direction. These areas will be developed in accordance with planned sector layouts prepared by the Authority and prevailing building bylaws. Development incentives will be provided as per relevant Government Orders related to the Uttar Pradesh Industrial and Infrastructure Development Policy of 2012 and Authority guidelines. Essential industrial infrastructure, including a 24/7 freight complex, power supply, water supply, and sewerage system, will support this development.

Existing stone crushers and brick kilns within the proposed urban centre and TTZ will be relocated outside these zones due to their polluting nature. Any manufacturing industries operating within the proposed urban centre in zones other than designated industrial areas will be subject to the TTZ policy within the framework of MOEF guidelines. Expansion or reconstruction of such units beyond their existing area will be governed by the permissibility outlined in zoning regulations. Finally, the Authority, State Government, Central Government, or their respective departments/agencies retain the right to take appropriate legal action regarding existing structures within the Right of Way (ROW) of existing and proposed Master Plan roads, railways, and other transport modes.

Figure 10-5 Proposed Industrial Development



Source: Consultant

10.3.3.2 PLUG AND PLAY INDUSTRIES

"Plug-and-play" industries operate on a "ready-to-move-in" model, where the physical and legal infrastructure is pre-established so that a business can start production or operations within weeks rather than years.

The infrastructure requirements for these facilities generally fall into three categories: Physical Core, Utility/Technical, and Statutory/Support. Some low hanging fruit for this sector will be electronics, handicrafts, sports goods and apparel for AUC. The physical structures designed to be modular and versatile to suit various light-to-medium manufacturing or service industries Ready-Built Factories (RBF) with Pre-constructed industrial sheds with high ceilings and heavy-duty flooring capable of withstanding industrial loads and flexible floor plans will be encouraged during the design of plug and play facilities. Other core infrastructure will include:

a) Loading/Unloading Docks: Dedicated zones with ramps and space for heavy trucks (up to 40-foot containers) to manoeuvre.
b) Internal Road Network: Wide, heavy-duty asphalt or concrete roads designed for high traffic and heavy axle loads. These roads will also have access to high-speed transport corridors
c) Apart from loading/ unloading dock, Power supply with dedicated transformers, Water & Waste Management, 24/7 industrial and potable water supply will be essential.
d) CETP/STP: Integrated Common Effluent Treatment Plants and Sewage Treatment Plants will be provided so the tenant doesn't have to build their own.
e) Pre-installed high-speed fibre optic connectivity and Wi-Fi-e enabled zones and safety features like fire safety and CCTV surveillance will also be required.

10.3.4 Mixed Use

The modern urban planning approach increasingly emphasizes the benefits of mixed-use development. Integrating a variety of activities, such as residential, commercial, institutional, and compatible non-polluting economic ventures, offers numerous advantages. Critically, it reduces the need for extensive travel, leading to lower energy consumption and a smaller carbon footprint. Furthermore, by minimizing commute times, mixed-use development enhances manpower efficiency, saving valuable time and energy that would otherwise be lost in transit between homes and workplaces. Mix use may be allowed horizontally or vertically or combination of both. In such areas, mixed use development will be permitted as per specified guidelines. The minimum area for any such development within the mixed-use zone for various non-polluting economic activities is as follows:

- 25% of the zone for development with minimum area <10ha
- 75% for development with minimum area 10ha and >10ha

However, for IT and ITES the development shall be as per prevailing policy of the Authority.

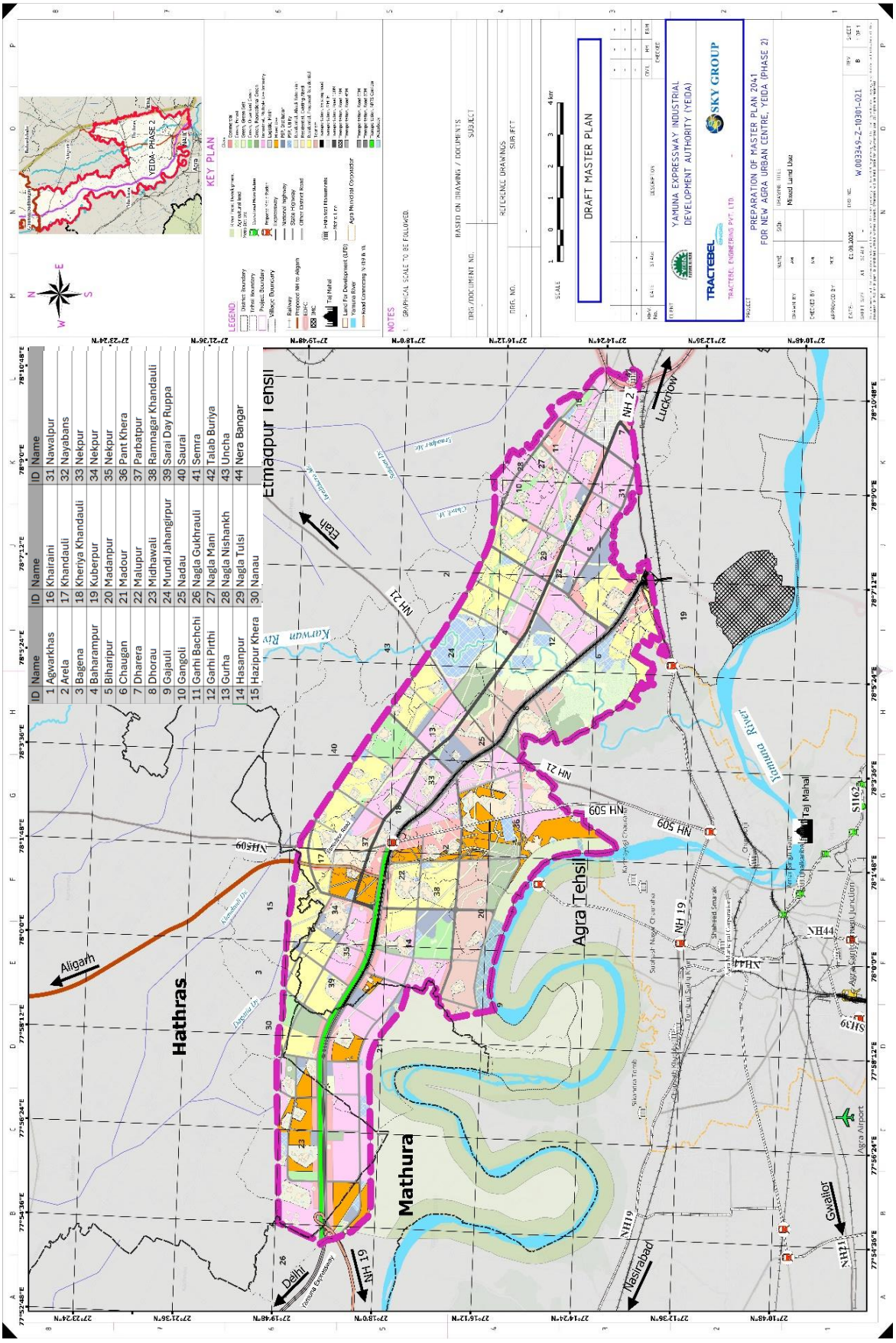
In the Agra Urban Centre's Plan 2041, a substantial area of approximately 812.62 hectares (5.61% of the urban centre) has been designated for mixed-use development along the NH-509, proposed NH to Aligarh and proposed 80 mt. wide road having direct connectivity from interchange from Yamuna Expressway at Khandauli. The key non polluting economic activities identified to be developed within the zone are as follows:

- **Industries**: Non polluting manufacturing and processing units
- **Recreational:** Amusement Park, Theme Parks, Auditorium, Amphitheatre, Sports facility, Cultural Centre etc.
- **IT Industry, Software Services, IT Services & IT enabled services**
- **Institutional:** Universities, Engineering, Medical and Management Colleges, Disaster Management Institutes etc.

Further it has been proposed that one-third of the mixed-use zone shall be development with core activity as Industries. The suggested land use breakup for the development within mixed use zone is as follows:

- Core Activity (Industrial/Institutional/Recreational)- 60%
- Residential- Maximum 24%
- Commercial- Maximum 6%
- Institutional (facilities/Utilities)- Minimum 10%
- Roads/parking & parks & open spaces shall be as per Building & Sub-Division Regulations of YEIDA.

Figure 10-6 Proposed Mixed-use Development



ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
2	Arela	17	Khandauli	32	Nayabans
3	Bagena	18	Kheriya Khandauli	33	Nekpur
4	Baharampur	19	Kuberpur	34	Nekpur
5	Biharipur	20	Madanpur	35	Nekpur
6	Chaugan	21	Madour	36	Pant Khera
7	Dharera	22	Malupur	37	Parbatpur
8	Dhorau	23	Midhawali	38	Ramnagar Khandauli
9	Gajauli	24	Mundi Jahangirpur	39	Sarai Day Ruppa
10	Gangoli	25	Nadau	40	Saurai
11	Garhi Bachchi	26	Nagla Gukhrauli	41	Semra
12	Garhi Pirthi	27	Nagla Mani	42	Talab Buriya
13	Gurha	28	Nagla Nishankh	43	Uncha
14	Hasanpur	29	Nagla Tulsi	44	Nera Bangar
15	Hazipur Khera	30	Nanau		

Source: Consultant

10.3.5 Tourism Zone

Leveraging its proximity to the renowned Agra- Braj tourist circuit, encompassing Agra, Fatehpur Sikri, Mathura-Vrindavan, the Agra Urban Centre is poised to become a significant tourism destination. To capitalize on this existing tourist flow, the urban centre will develop a range of attractions and facilities designed to encourage both day trips and extended stays, thereby significantly boosting the local economy. A key component of this strategy is the development of MICE Infrastructure, Hospitality development & riverfront development along the Yamuna bank within the YEIDA region. These proposals will be detailed further during the layout planning phase. A substantial area of 680.72 hectares, representing 4.70% of the Agra urban centre, has been designated as a dedicated Tourism Zone.

A part of other land uses such as recreational green, mixed use and commercial will also contribute towards area under tourism. Therefore, the total effective area under tourism will be about 950 Hectare.

The institutional spaces for tourism in Agra Urban Centre are essential for supporting the city's thriving tourism industry. The MICE (Meetings, Incentives, Conferences, and Exhibitions) industry can play a significant role in promoting tourism in AUC & Agra, offering numerous benefits that contribute to the city's economic growth and global recognition. The MICE industry supports a wide range of ancillary industries, such as event planners, caterers, transportation providers, and souvenir shops. The growth of the MICE sector creates employment opportunities and stimulates the development of these related businesses. A significant area has been allocated for Institutional-Tourism to support these vital institutions.

Beyond world-class institutions, commercials and recreational offerings such as an amusement park, golf course, sports complex, and stadium, this Tourism Zone will provide a diverse array of experiences, including:

a. **Convention and Exhibition Centres:** Development of a modern, state-of-the-art Convention and Exhibition Centre (CEC)/ MICE.
b. **Culture and Entertainment:** An amphitheatre, open-air theatres, a museum, a convention centre, theme-based heritage centres, and theme parks.
c. **Accommodation**: Luxury Hotels, Star Hotels, Resorts, Heritage Hotels, Agri-Tourism Stays, Wellness retreats, Budget hotels, service apartments, Boutique hotels.
d. **Tourism Support**: A tourist facility and information centre, and tourist travel facilities.
e. **Wellness and Recreation**: Lush green parks for jogging, walking, and meditation; naturopathy centres, and Ayurveda, Yoga, and wellness centres.
f. **Local Arts and Culture**: A "Haat" development showcasing local arts and crafts, a mela ground, tourist trails, and a rural tourism centre.

A dedicated plan and policy, aligned with the Uttar Pradesh Tourism Policy and the National Tourism Policy, will be developed for the implementation and management of this Tourism Zone. All relevant departments will collaborate to identify and ensure the protection and conservation of existing tourism sites, including monuments, heritage areas, and natural heritage sites. The YEIDA Authority will undertake a detailed project report for the Tourism Zone's development as a special project, determining the project's scope, area, and the mix of permissible uses and activities within the zone.

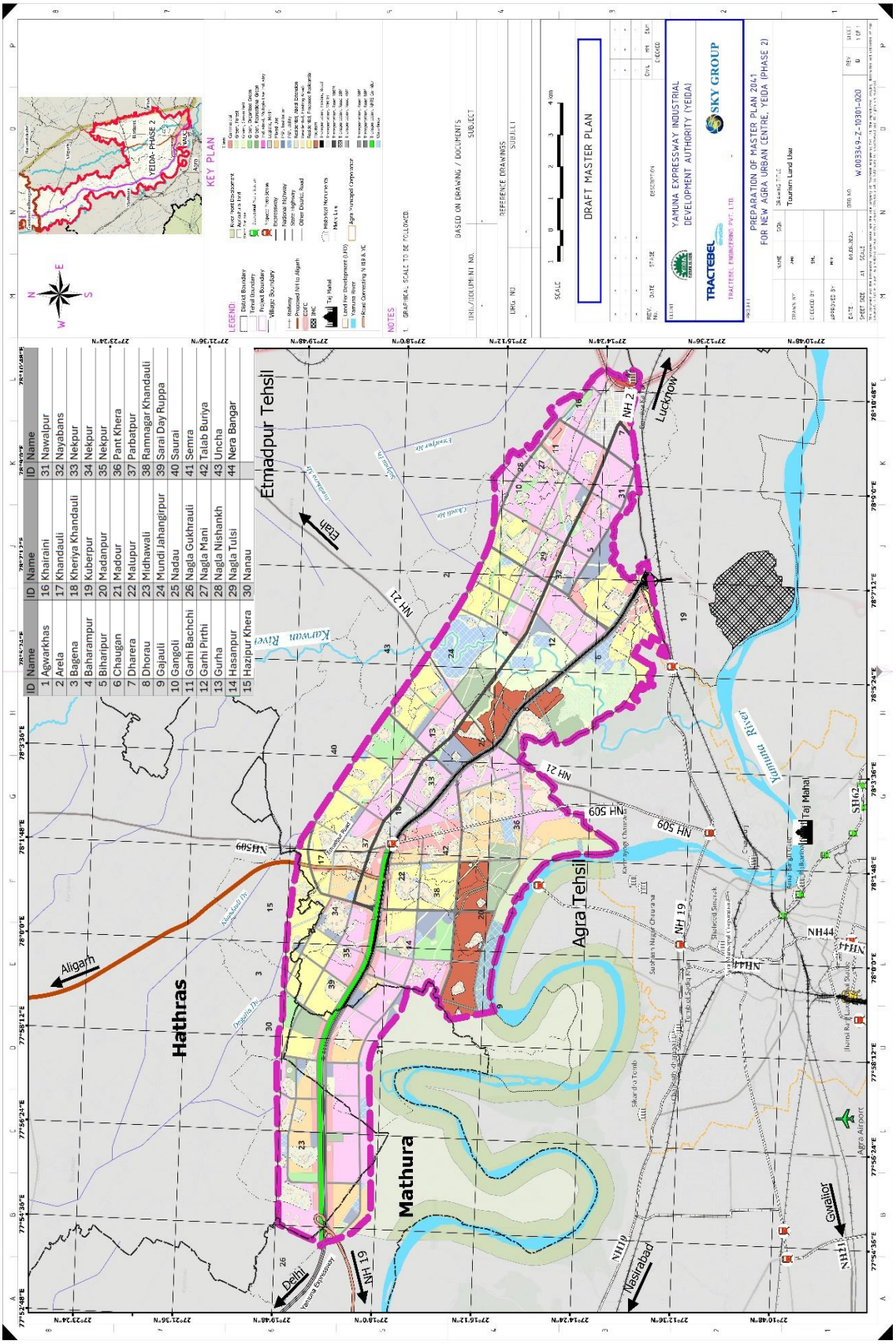
Table 10-3 Details of area wise composition of activities

Tourism (≈1000 Ha)

Land Use	Area (Ha)	Activities
Tourism	650	**Zone 1: (Near Karwan river and Chaugan forest, along Y.E.)** Luxury resort, boutique hotels, wellness retreat, MICE, Museum, art gallery, eco tourism **Zone 2: (Along Yamuna river riverfront, proximity to NH 509 and Y.E.)** Cultural and culinary experience center, luxury and budget hotels, artisan village and experience center, sports village, MICE
Commercial-Tourism	150-200	Hotels- budget, luxury
Recreational Green	100	Golf Course, sports village
Mixed Use	50	Commercial, institutional, recreational

Source: Consultant

Figure 10-7: Proposed Tourism Area



Source: Consultant

10.3.6 Public-Semi Public

The master plan incorporates a range of essential government, semi-government, and social infrastructure provisions, encompassing educational institutions, healthcare facilities, socio-cultural centres, and other community amenities. A core principle of this planned development is the strategic provision of both social and physical infrastructure, organized hierarchically to serve the community effectively. City-level facilities of higher order are designated as public and semi-public spaces within the master plan itself. In contrast, lower-level facilities, designed to serve the immediate needs of residents, will be integrated into the residential sectors during the subsequent sector planning phase. This category includes Land for Institutional use and land allocated for the public utilities and facilities. The proposed area for Public Semi-Public use is 1034.44 Ha which is 7.14 % of the urban centre area, distributed along the entire urban centre at various locations.

10.3.6.1 INSTITUTIONAL

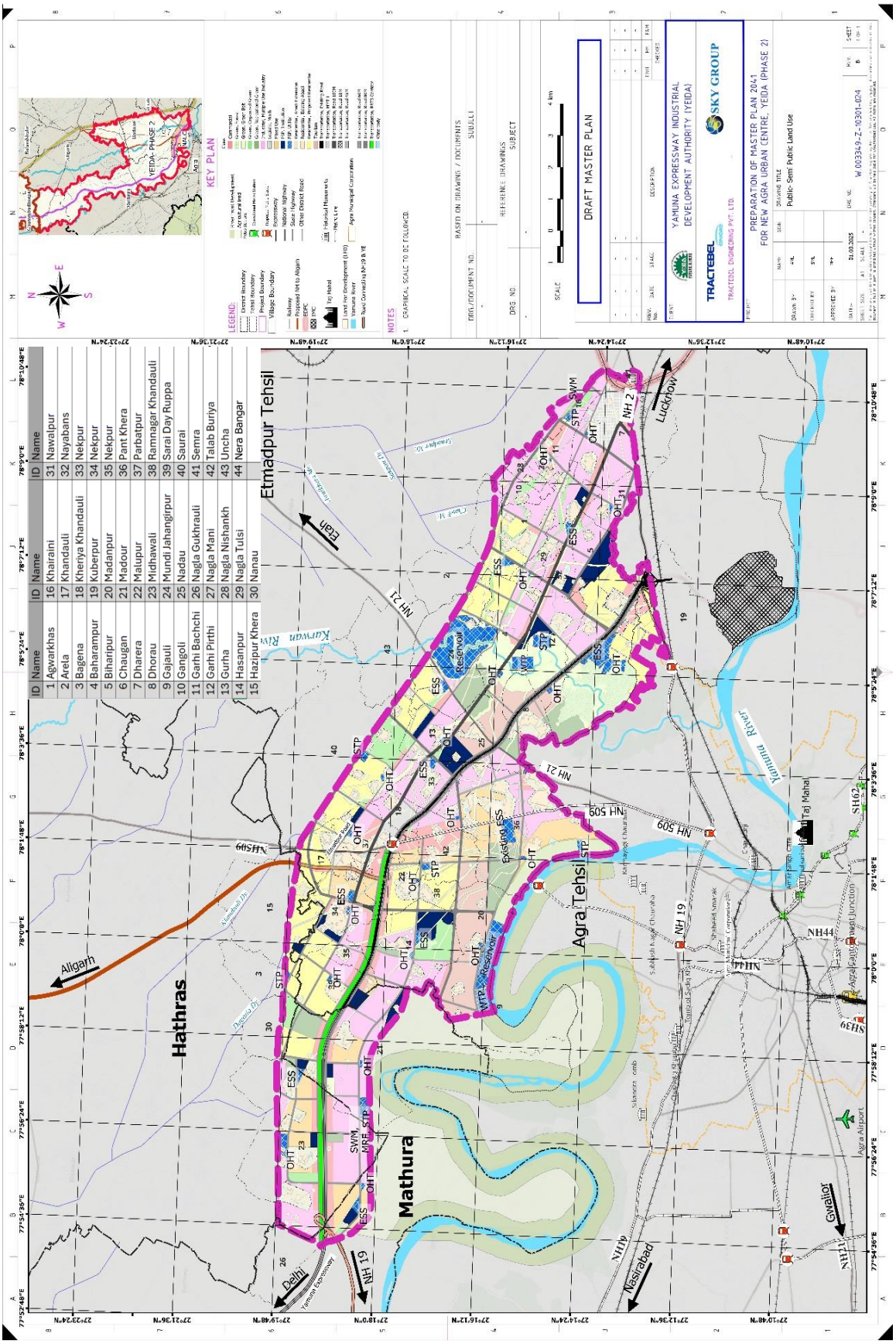
Institutional development plays a crucial role in the socio-economic advancement of the Agra Urban Centre, encompassing a diverse range of facilities dedicated to education, healthcare, research, and public administration. A significant area of 430.60 hectares, representing 2.97% of the total urbanizable land, has been allocated for public and semi-public use to support these vital institutions.

Strategically positioned throughout the area, schools, colleges, and vocational training centres will address a variety of educational needs, contributing to community stability and attracting both families and professionals. Comprehensive healthcare services will be readily accessible to residents through a network of hospitals and clinics.

10.3.6.2 UTILITY

The seamless functioning of urban centre hinges on a robust network of utilities and facilities, encompassing essential services such as water supply, power distribution, sewerage, and waste management. A dedicated area of 603.84 hectares, representing 4.17% of the urban centre area, has been allocated for these crucial components. A reliable and sustainable water supply will be ensured through a comprehensive network, while a 24/7 power supply, incorporating renewable energy sources, will promote both efficiency and sustainability. Advanced sewerage and waste management systems, including treatment plants and recycling facilities, will be implemented to minimize environmental impact. To enhance regional safety and security, emergency services, including fire stations, police stations, and disaster management centres, will be strategically located to ensure rapid response times. Furthermore, public amenities such as community centres, parks, and recreational facilities will be integrated throughout the area to enrich the quality of life for residents. Emphasizing sustainability and resilience, these utilities and facilities will leverage advanced technologies and intelligent infrastructure management systems to optimize resource utilization and service delivery.

Figure 10-8 Proposed Public-Semi Public Uses


KEY PLAN
DRAFT MASTER PLAN
PREPARATION OF MASTER PLAN 2041
FOR NEW AGRA URBAN CENTRE, YEIDA (PHASE 2)
YAMUNA EXPRESSWAY INDUSTRIAL DEVELOPMENT AUTHORITY (YEIDA)
TRACTEBEL
SKY GROUP
Public-Semi Public Land Use
Etmadpur Tehsil
Agra Tehsil
Hathras
Mathura
Aligarh
Delhi
Lucknow
Gwalior
Nasirabad
Agra Airport
Taj Mahal
Yamuna River
Kurwan River
NH 2
NH 19
NH 21
NH 509
NH44
SH39
SH62
STP
WTP
OHT
ESS
Reservoir
SWM
MRF
Existing
Proposed
Land for Development (LFD)
Agra Municipal Corporation
Agra Cantonment Board
Taj Trapezium Zone
Yamuna Expressway
Agra-Lucknow Expressway
Agra-Delhi National Highway
Agra-Gwalior National Highway
Agra-Bharatpur-Dholpur National Highway
Agra-Mathura National Highway
Agra-Etmadpur-Firozabad National Highway
Agra-Kanpur National Highway
Agra-Jaipur National Highway
Agra-Hathras-Aligarh National Highway
Agra-Etah National Highway
Agra-Mainpuri National Highway
Agra-Fatehpur Sikri National Highway
Agra-Bah National Highway
Agra-Dholpur National Highway
Agra-Bharat

10.3.7 Transportation

A well-planned and efficient road and transport network is fundamental to the sustainable growth and prosperity of any city. The area under traffic & transportation landuse is 2189.22 Hectare (15.12% area of the urban centre). The proposed transport development within the Agra Urban Centre has been carefully designed with the following overarching objectives in mind:

1. A proposed **100-meter-wide master plan road** that runs parallel to the Yamuna Expressway and connects directly to NH-02 and the Expressway will serve as the city's spine. The circulation pattern within the Agra Urban Centre consists of a network of roads with hierarchy levels of **100, 80m, 60m and 45m**. These road widths facilitate segregation across all modes of transportation in the urban centre.
2. **Facilitating Economic Growth and Social Interaction:** To enable the seamless and efficient movement of people and goods, thereby accelerating economic development by connecting businesses, facilitating trade, and creating employment opportunities. Furthermore, improved transport networks will foster stronger social interactions by connecting communities, enabling access to essential services like education and healthcare, and promoting cultural exchange.
3. **Enhancing Accessibility:** To significantly improve accessibility to and from the Agra Urban Centre, linking it effectively with the surrounding region. Simultaneously, internal connectivity within the city will be enhanced, ensuring easy and convenient movement for residents, workers, and visitors. This includes improved access to residential areas, commercial centres, employment hubs, and recreational facilities.
4. **Prioritizing Safety, Environmental Quality, and Quality of Life**: To maximize the safety of all road users, including pedestrians, cyclists, and motorists, by implementing robust safety measures and infrastructure. Crucially, the transport plan aims to promote environmental quality by reducing emissions, minimizing noise pollution, and encouraging the use of sustainable transport modes. Ultimately, these improvements will enhance the overall quality of life for all residents.

To achieve these key objectives, the following core strategies have been adopted:

- **Integrated Road Network:** A well-coordinated and interconnected road network will be developed, providing seamless intra-city and inter-city connectivity. This network will be designed to handle current and projected traffic volumes, ensuring efficient flow and minimizing congestion. Strategic road links will connect key areas within the city and facilitate smooth access to regional and national transport networks.
- **Prioritizing Public Transport:** Public transport will be given priority, with the development of an efficient and reliable system, potentially including bus rapid transit (BRT), metro, or light rail, depending on feasibility studies. Feeder services will be integrated with the main public transport network to ensure last-mile connectivity and encourage wider usage, reducing reliance on private vehicles.
- **Multimodal Integration:** A truly integrated multimodal transport system will be established, creating an environment where each mode (road, rail, public transport, cycling, walking) can operate at its optimal efficiency. Seamless integration between modes will be a priority, allowing for easy transfers and a smooth overall journey. This may include integrated ticketing systems, coordinate timetables, and strategically located interchange facilities.

- **Pedestrian and Cyclist Infrastructure:** Encouraging walking and cycling for last-mile connectivity will be a key focus. This will be achieved through the provision of dedicated and safe infrastructure, including pedestrian walkways, cycle lanes, and pedestrian crossings. Creating a pedestrian and cyclist-friendly environment will promote sustainable transport, improve public health, and enhance the livability of the city.
- **User and Environment-Friendly Infrastructure:** The development of user-friendly and environmentally responsible transport infrastructure is paramount. This includes features like accessible public transport, electric vehicle charging stations, noise barriers, and green spaces along transport corridors. The choice of materials and construction methods will also prioritize sustainability and minimize environmental impact.

The proposed road hierarchy demonstrates a strategically structured network designed to accommodate varying traffic volumes and movement functions across the Agra Urban Centre. The 100-metre-wide road constitutes approximately 9% of the total proposed road network, with a cumulative length of 19.7 km. Strategically aligned parallel to the Yamuna Expressway, this corridor is intended to support high-volume traffic, facilitating both goods movement and commuter flows.

The 80-metre-wide roads function as primary arterial corridors, accounting for 21% of the proposed road network with an aggregate length of 43.7 km. These arterials are envisaged to relieve traffic loads emanating from the 100-metre corridor and the Yamuna Expressway, with the redistributed traffic subsequently accommodated by the proposed 60-metre-wide sub-arterial roads. It also provides connection between the Northern and souther part of the Urban centre.

The 60-metre road category comprises the largest share of the network, representing nearly 59% of the total proposed road length, extending approximately 123.6 km. These sub-arterial roads run parallel along both sides of the expressway, serving as critical conduits for commuters exiting the expressway. Additionally, they ensure efficient internal traffic distribution across the urban centre by interlinking various sectors and facilitating seamless mobility.

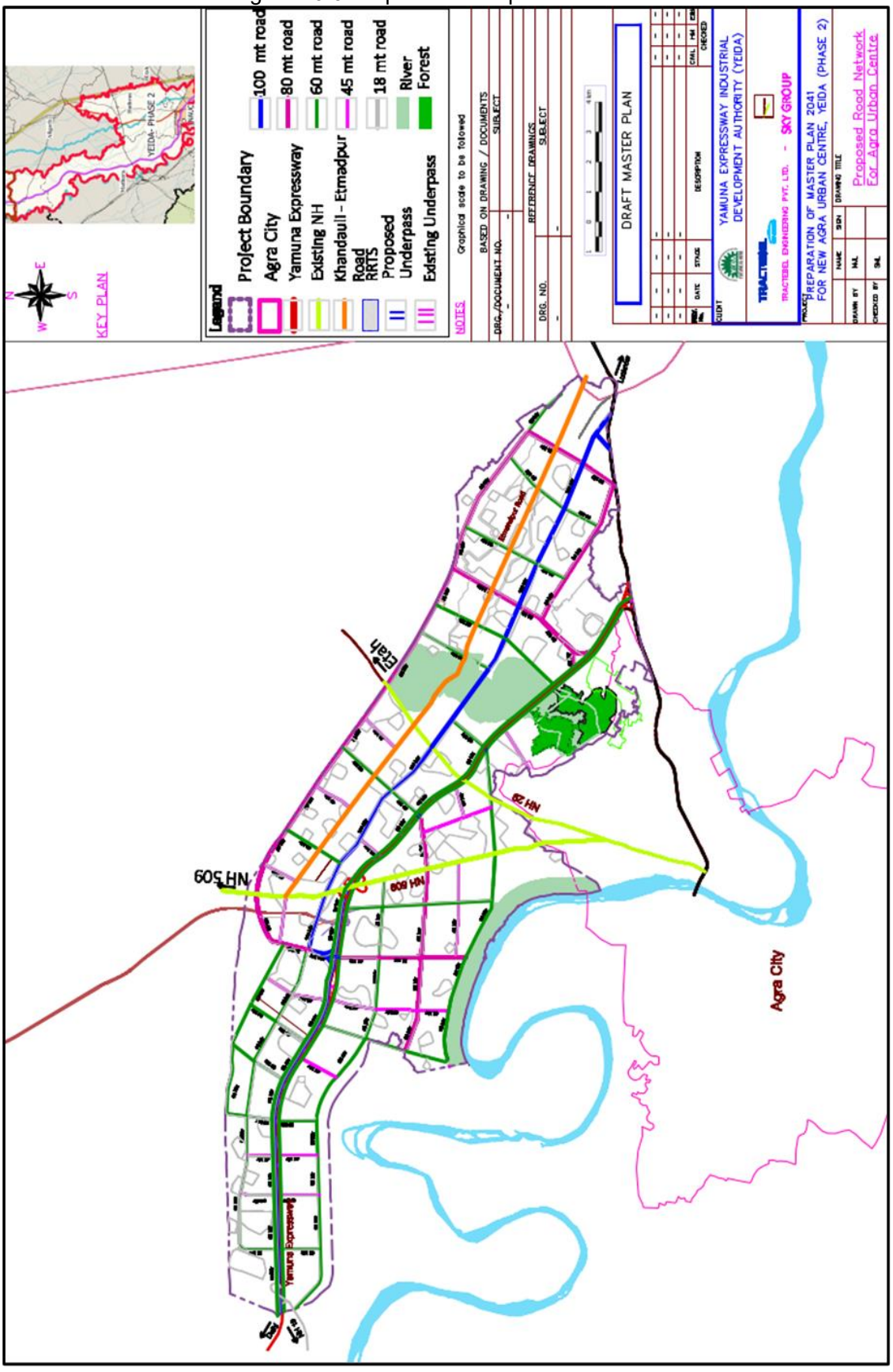
Finally, the proposed 45-metre-wide collector roads provide access to the interior areas of individual sectors. This category accounts for around 11% of the total proposed road network, with a total length of 22 km, and plays a crucial role in last-mile connectivity and localized circulation within the urban fabric.

Table 10-4 Proposed Roads Length

Proposed Width	Length (KM)	Share Percentage
100	19.7	9%
80	43.7	21%
60	123.6	59%
45	22	11%
Total	209.1	100%

Source: Consultant

Figure 10-9 Proposed Transportation Network



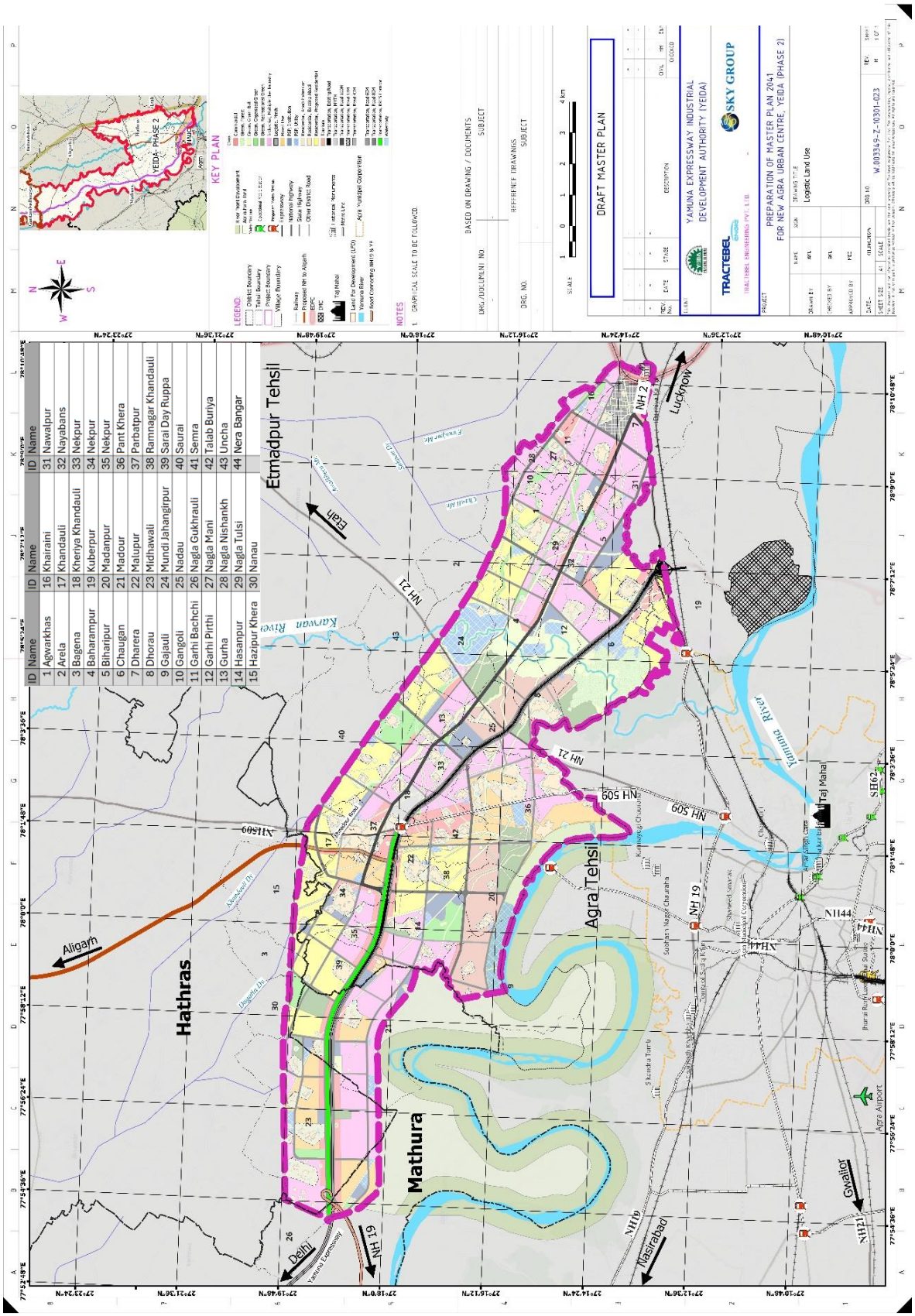
Source: Consultant

10.3.8 Logistics

Logistics zone is envisioned in Agra Urban Centre, capitalizing on its advantageous geographical position and superior connectivity. Its proximity to the Eastern Dedicated Freight Corridor (EDFC) at New Tundla Railway Station, and its proximity to all regional road network, and proposed industrial zone makes it an ideal location for logistics and warehousing operations. This strategic positioning is further enhanced by robust infrastructure, including a reliable and continuous water and power supply, coupled with an extensive network of roads and railways, all crucial for seamless logistics activities. A substantial area of 158.84 hectares, representing 1.10% of the urban centre area, has been specifically allocated for logistics development. This land is strategically located in the southeast, to optimize access to existing and planned infrastructure. The master plan provides flexibility in the type and scale of logistics units, catering to a diverse range of activities, from expansive warehousing facilities to smaller, more specialized distribution centres.

These dedicated logistics zones will be equipped with essential utilities and services, including a 24/7 power supply, efficient water management systems, robust sewerage networks, and dedicated Freight Complexes designed to handle high volumes of cargo. These Freight Complexes will incorporate essential support services such as dedicated loading and unloading bays, truck terminals, and maintenance facilities to ensure efficient and streamlined operations. Development, expansion, or reconstruction within these logistics zones will be governed by sector-specific layouts prepared by the YEIDA Authority and will adhere to prevailing building bylaws. Developers will also be eligible for various incentives offered under the Industrial and Infrastructure Development Policy of Uttar Pradesh-2012 and the Authority's own guidelines. The YEIDA Authority will rigorously enforce compliance with regulations concerning existing structures within the Right of Way (ROW) of roads and other transport infrastructure, ensuring smooth project implementation and adherence to policy guidelines. This comprehensive approach will facilitate the development of a world-class logistics hub within the Agra Urban Centre.

Figure 10-10 Proposed Multi Modal Logistic Hub



Source: Consultant

10.3.9 Greens

The Agra Urban Centre plan prioritizes environmental sustainability by integrating a comprehensive green infrastructure strategy into its urban design. A significant portion of the total urbanizable area, 2325.63 hectares (representing 16.06 % of the urban centre), has been designated for green spaces. These areas are further categorized into parks and playgrounds, green belts, river buffers, and recreational green spaces.

For an industrial town, plant species with a high **Air Pollution Tolerance Index (APTI)**—plants that don't just survive but actively filter the air while consuming minimal water are preferred. Neem, Peepal & Banyan are three native trees that are considered as the gold standard for Indian industrial zones due to their high APTI and cultural significance, which ensures better survival rates. Since agra sits in a semi-arid zone hence, "Water-Smart" planting is essential to avoid depleting the local water table, trees like **Amaltas (Golden Shower), Arjun Tree (*Terminalia arjuna*)**, **Shisham (*Dalbergia sissoo*), Babool (*Acacia nilotica*)** are preferred in this region. This diverse network of green infrastructure will collectively foster a healthier, more vibrant, and ecologically balanced community, ultimately contributing to the region's long-term environmental and social well-being. Detailed landscaping proposal must take into account that local varieties which are less water intensive and help in reducing pollution, should be proposed.

10.3.9.1 ORGANIZED GREENS (CITY LEVEL PARKS & PLAYGROUNDS)

Parks and playgrounds are integral to the green infrastructure of the Agra Urban Centre plan, providing essential recreational and environmental benefits. A substantial area of 420.14 hectares, representing 2.90% of the urban centre, is dedicated to these vital green spaces. Designed to connect residents with nature, these areas promote both physical and mental well-being.

10.3.9.2 GREEN BELTS

Green belts are a cornerstone of the Agra Urban Centre plan green infrastructure strategy, comprising a significant 1138.94 hectares (7.87% of the urban centre). These strategically planned green spaces act as vital transitional zones between diverse land uses, effectively mitigating environmental impacts and fostering a healthier environment. Specifically, they serve as crucial separators between residential and industrial zones, minimizing the effects of pollution and noise. By absorbing noise and acting as natural barriers, these buffers contribute to improved air quality and a more peaceful living environment for residents.

Furthermore, these green corridors play a vital role in supporting regional biodiversity by creating essential habitats for a variety of plant and animal species, thus contributing to the overall ecological balance of the area. In accordance with Ministry of Environment, Forest and Climate Change (MoEF) guidelines, all ecologically sensitive areas, including rivers, canals, natural drains, ponds, and other water bodies, will be meticulously conserved.

To further enhance environmental protection, green belts of varying widths will be established along key infrastructure elements. A 30-meter green belt on each side of canals and a 15-meter green belt on each side of natural drains will safeguard these vital natural resources. Additionally, green belts of varying widths, including a substantial 50-meter green belt on each side of the Yamuna Expressway, National Highways and other Master Plan Roads, will provide much-needed "lung spaces" within the urban environment and help mitigate traffic-related pollution.

These linear green spaces will not only improve air quality but also offer opportunities for passive recreation and enhance the aesthetic appeal of the region. Native plant species like Neem, Jamun, Imli, and Gular, Ashoka, Kaner should be consider for plantation at the time of detailing of landscape plan.

River buffers along the Yamuna and Karwan Rivers in the Agra Urban Centre are vital for environmental conservation, flood management, and urban sustainability. 500 mt. wide buffers are proposed on either side of the river. Establishing these buffers, which are essentially strips of natural vegetation or green spaces along riverbanks, helps to improve water quality, prevent soil erosion, and create habitat for wildlife.

For the Yamuna River, which is prone to pollution and encroachment, a buffer zone can filter out contaminants, reducing water pollution while also providing aesthetic and recreational spaces for the community. These zones act as protective barriers during floods by slowing down water flow and mitigating erosion. Additionally, promoting native vegetation in these buffer zones can improve biodiversity, offering ecological benefits for both flora and fauna.

Similarly, for the Karwan River, creating river buffers will enhance the quality of water while providing a space for the community to engage in outdoor activities. The buffer zones can be designed to include green trails, public parks, or agricultural zones, encouraging sustainable land use and fostering a sense of connection between the urban population and the natural environment.

10.3.9.3 RECREATIONAL GREEN

Agra Urban Centre is proposed to be developed as an eco-city, prioritizing abundant lung spaces and recreational areas woven throughout the urban fabric. A substantial 460.08 hectares, representing 3.18% of the urban centre, has been designated for recreational use. These green spaces will offer a diverse range of outdoor activities and leisure opportunities, enriching the lives of residents. These facilities are scattered strategically across the AUC and will be developed as sports fields, playgrounds, amusement parks, golf course etc., promoting an active lifestyle and providing venues for community events and organized sports.

Designed with accessibility for all age groups in mind, these recreational green areas will ensure that every resident, regardless of age or ability, has the chance to engage in outdoor pursuits. This emphasis on recreational green spaces not only enhances the overall quality of life but also strengthens the social fabric of the community by creating shared spaces for interaction and recreation.

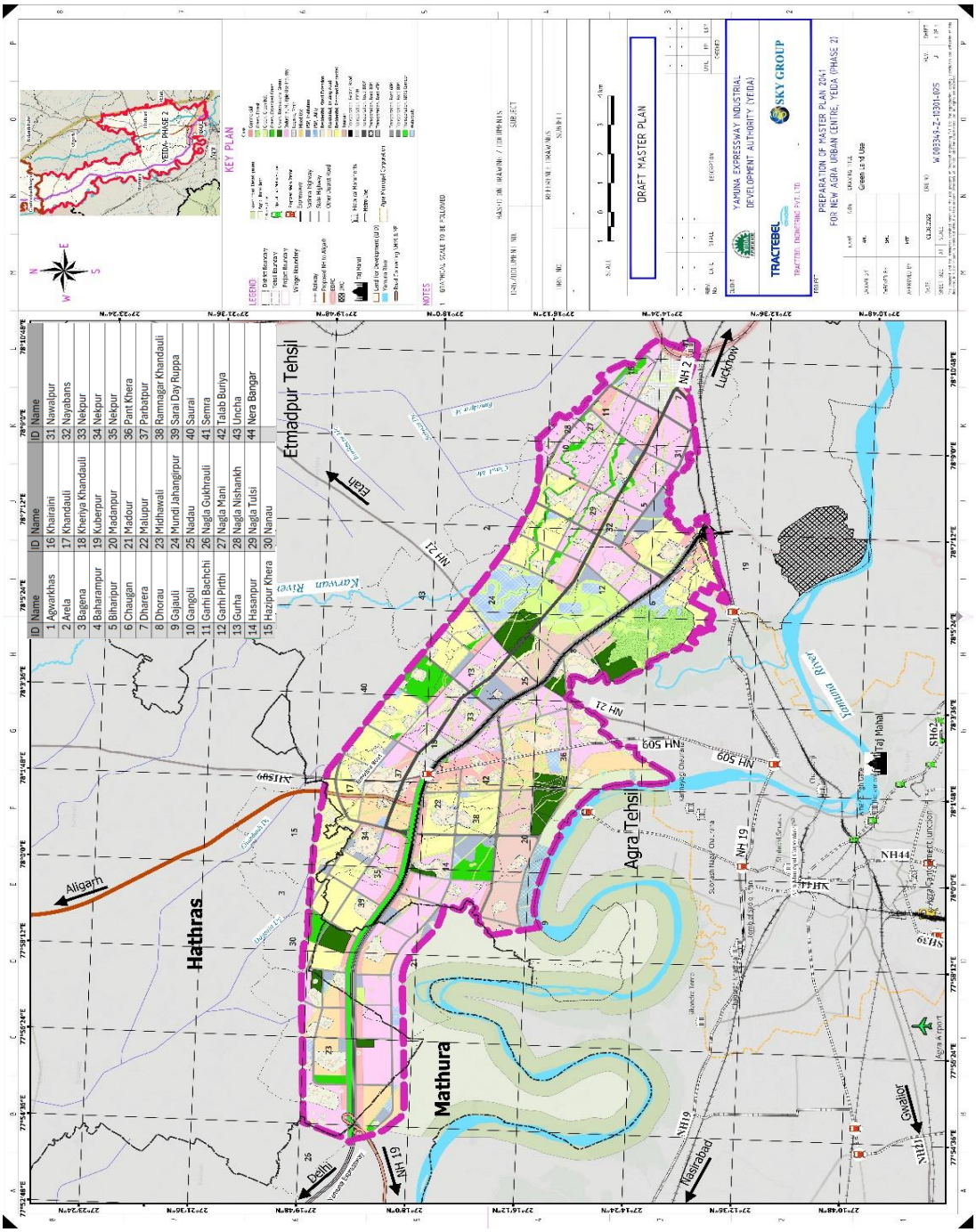
The distribution of these recreational opportunities has been carefully planned to ensure convenient access for all. Sports Village has been proposed in the tourism zone near Yamuna Buffer along 80 mt. wide proposed road and is easily accessible from the Yamuna Expressway and serving the entire city and its surrounding region. This sports village promises to be a major recreational hub.

Golf course of 100 hectare is proposed on 100 mt. wide arterial road near Karwan River buffer No Development Zone. The proposal for a golf course near the of the Karwan River buffer aims to blend recreational space with environmental conservation. Situated adjacent to the river's protected buffer zone, this golf course would be designed to minimize its impact on the surrounding natural ecosystem. The development of this golf course could promote tourism and local economic growth while preserving the natural beauty and ecological function of the Karwan River buffer. Careful planning and adherence to environmental regulations would ensure that the project aligns with the city's goals of responsible urban development and ecological sustainability.

10.3.9.4 FOREST

Existing forest area in Chaugan i.e. 306.47 Hectare (2.12% of the urban centre) as identified in revenue records from the forest department, will be preserved and incorporated into the green infrastructure. Furthermore, during layout preparation, the authority will identify and protect any other ecologically sensitive areas, including open scrublands. To enhance air quality and create vital carbon sinks, contributing to regional sustainability goals, the tree cover within identified forest areas will be expanded by incorporating surrounding areas as a green buffer zone.

Figure 10-11 Proposed Green Network



Source: Consultant

10.3.10 Water Bodies (River/Canal/Drain/Lake/Pond)

The Agra Urban Centre (AUC) recognizes the critical importance of preserving its natural environment and has allocated 78.02 hectares, representing 0.54% of the urban centre, to ecologically sensitive areas. These vital ecological resources, including rivers, canals, natural drains, ponds, natural streams and other water bodies, are essential to the region's health and sustainability. A comprehensive inventory of water bodies, including rivers, canals, streams, and ponds, has been compiled using sources like satellite imagery and topographical sheets. However, recognizing the probable discrepancies in data from these sources, the YEIDA Authority must carry out a rigorous verification process at the time of implementation.

During the preparation and implementation of layout plans, a competent authority shall conduct primary surveys and cross-reference these findings with revenue records to definitively identify and delineate all natural features, including water bodies, rivers, ponds, canals, streams and drains. Critically, these identified water bodies shall be protected from any development encroachment.

Given the potential variations in water body area across different secondary sources (toposheets, satellite imagery, revenue records), the Authority shall make informed decisions regarding their precise boundaries before project implementation.

The Master Plan's canal and drain widths, currently estimated based on satellite imagery, shall be field verified during layout preparation. Appropriate space, designated as a "no development area," shall be reserved accordingly. Furthermore, protective green belts shall be established along these watercourses: a 30-meter buffer zone on each side of canals and a 15-meter buffer zone on each side of natural drains. This measure aims to safeguard these vital natural drainage systems. Ponds identified in revenue records will be preserved, with a 30-meter "no development zone" maintained around their perimeter. Exceptions shall be made only for activities directly related to the development and maintenance of these specific water bodies. Recognizing the ecological sensitivity of waterlogged or swampy areas, the Authority shall conduct detailed assessments during layout preparation to identify these zones and implement appropriate measures for their sustainable use and preservation.

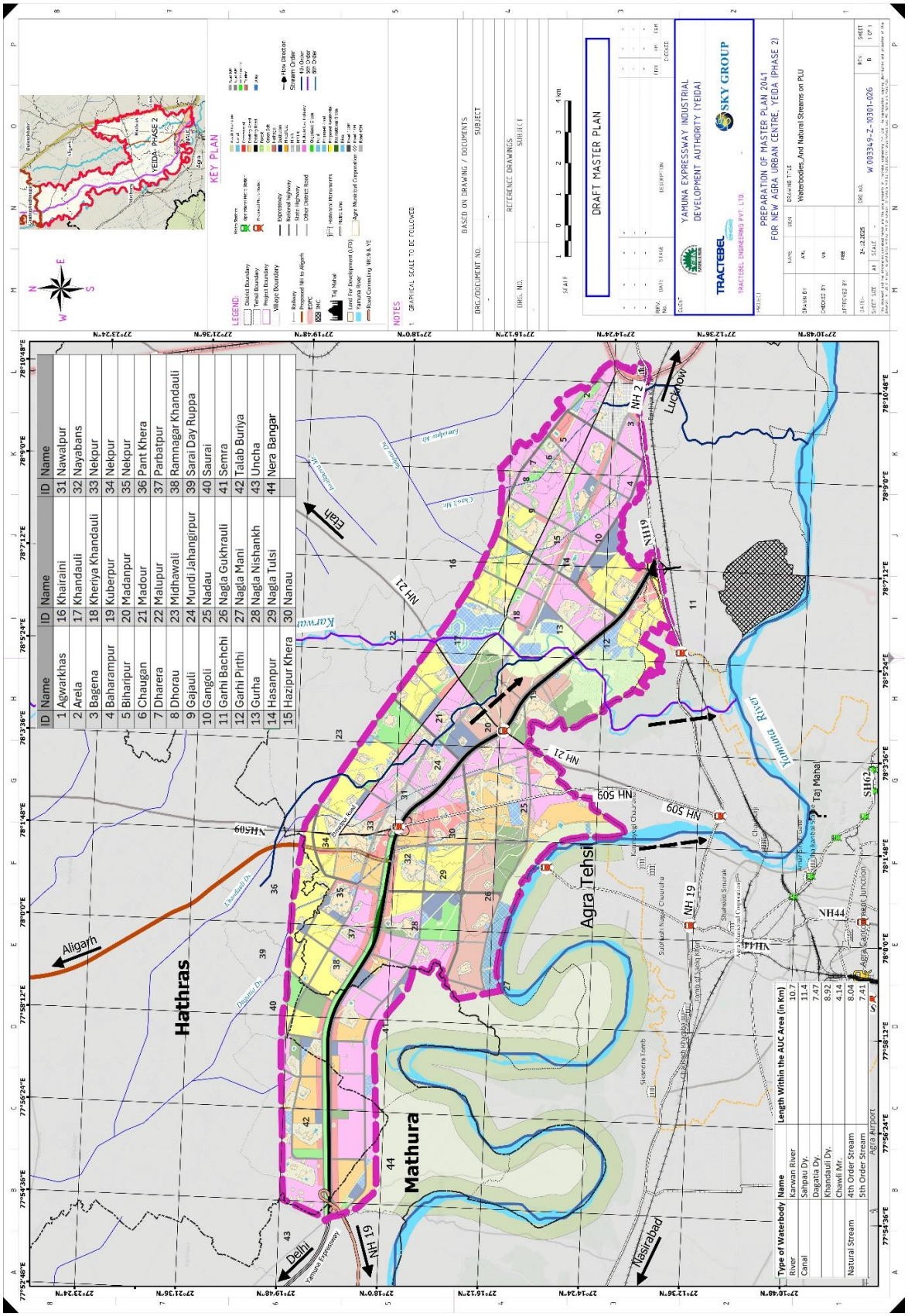
Riverbank Protection and Development: To mitigate flood risks, the concerned department shall be responsible for constructing and maintaining embankments or bunds along rivers, streams, and drains, or implementing other suitable protective measures. Development activities along the Yamuna & Karwan River shall be strictly regulated and permitted only in accordance with Ministry of Environment, Forest and Climate Change (MOEF) guidelines. However, within existing rural abadi areas (inhabited areas), essential basic facilities and amenities may be permitted with explicit authorization from the YEIDA Authority, even if they fall within the regulated zone. This cautious approach balances development needs with environmental protection and flood management considerations.

Table 10-5 Length of Waterbodies in AUC

Type of Waterbody	Name	Length Within the AUC Area (in Km)
River	Karwan River	10.7
Canal	Sahpau Dy.	11.4
	Dagatia Dy.	7.47
	Khandauli Dy.	8.92
	Chawli Mr.	4.14
Natural Stream	4th Order Stream	8.04
	5th Order Stream	7.41

Source: Consultant Analysis

Figure 10-12: Waterbodies & Natural Features in AUC



ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
2	Arela	17	Khandauli	32	Nayabans
3	Bagena	18	Kheriya Khandauli	33	Nekpur
4	Baharampur	19	Kuberpur	34	Nekpur
5	Biharipur	20	Madanpur	35	Nekpur
6	Chaugan	21	Madour	36	Pant Khera
7	Dharera	22	Malupur	37	Parbatpur
8	Dhorau	23	Midhawali	38	Ramnagar Khandauli
9	Gajauli	24	Mundi Jahangirpur	39	Sarai Day Ruppa
10	Gangoli	25	Nadau	40	Saurai
11	Garhi Bachchi	26	Nagla Gukhrauli	41	Semra
12	Garhi Pirthi	27	Nagla Mani	42	Talab Buriya
13	Gurha	28	Nagla Nishankh	43	Uncha
14	Hasanpur	29	Nagla Tulsi	44	Nera Bangar
15	Hazipur Khera	30	Nanau		

Source: Consultant

10.4 Hierarchical Provision of Facilities & Services

The planned facilities will be distributed across three distinct levels to serve the projected population of 16,50,000 by the year 2041. This tiered approach ensures a comprehensive and efficient provision of services.

- **City Level:** Facilities designed for the entire city population will be primarily located in designated areas within the master plan.
- **Community Level:** Services for community clusters of 100,000 to 150,000 people will be provisioned during detailed sector-level planning.
- **Sector Level:** Facilities catering to smaller sectors with a population of 15,000 to 20,000 people will also be provisioned during detailed sector-level planning.

This approach ensures that essential services—including commercial, health, educational, communication, socio-cultural, recreational, and transportation facilities—are distributed efficiently. The **planning norms and standards** for these facilities are based on the **Urban Regional Development Plans Formulation and Implementation (URDPFI) guidelines** for the city and community levels, and the **Yamuna Expressway Authority, Building Regulations, 2010** for the sector level. These guidelines are flexible and can be modified as needed, provided there is a valid reason.

Table 10-6 Guidelines for Provision of Facilities at City Level

S. No.	City Level Facilities	Population Served per	Number of Facilities	Area per unit (Ha)
I	**Education**			
1	University	10,00,000	1	10--60
2	Engineering College	10,00,000	1	6
3	Medical College (including Nursing and Paramedical College)	10,00,000	1	15.2
4	Other Professional College	10,00,000	1	6
5	Technical Education Centre A	10,00,000	1	4
6	Technical Education Centre B	10,00,000	1	4
7	General College	1,25,000	1	5
8	School for Mentally Challenged	10,00,000	1	0.2
II	**Health**			
9	General Hospital	2,50,000	1	6
10	Veterinary hospital for Pets & Animals	5,00,000	1	0.2
III	**Socio-Cultural Facilities**			
11	Old Age Home	5,00,000	1	0.1
12	Orphanage & Children Centre	10,00,000	1	0.1
13	Care Centre for Physically & challenged	10,00,000	1	0.1
14	Working women-men hostel	10,00,000	1	0.1
15	Adult Education Centre	10,00,000	1	0.1
16	Night Shelter	10,00,000	1	0.1
17	Religious Facilities	10,00,000	1	0.1

S. No.	City Level Facilities	Population Served per	Number of Facilities	Area per unit (Ha)
18	Socio-Cultural Centre/Exhibition cum Fair Ground	1,00,000	1	15
19	Science Centre	1,00,000	1	As per requirement
20	International Convention Centre	City Level	1	As per requirement
IV	**Postal and Telephone Facilities**			
21	Head Post office & Administrative Office	5,00,000	1	0.25
22	Head Post Office with Delivery Office	2,50,000	1	0.075
23	Telephone Exchange of 40,000 lines	4,00,000	1	4
24	Radio-TV Station	5,00,000-8,00,000	1	0.17
V	**Recreational Facilities**			
25	City Park	10,00,000	1	100
26	District Park	5,00,000	1	25
27	City Level Multipurpose Ground	10,00,000	1	8
28	District Level Multipurpose Ground	5,00,000	1	4
29	City Sports Centre	10,00,000	1	20
VI	**Commercial**			
30	District Centre	5,00,000	1	40
31	Local Wholesale Market/Mandi	10,00,000	1	10
VII	Miscellaneous Facilities			
32	Electric Crematorium	5,00,000	1	2
33	Cremation Ground	5,00,000	1	2.5
34	Burial Ground	5,00,000	1	4

Source: URDPFI

Table 10-7 Guidelines for Provision of Facilities at Community Level

S. No.	Community Level Facilities	Population Served Unit	No. of Facilities	Area per Unit (ha)
	Education			
1	Integrated School without Hostel	1,00,000	1	3.5
2	Integrated School with Hostel Facility	1,00,000	1	3.9
3	School for Physically Challenged	45,000	1	0.7
II	**Health**			
4	Multi-Specialty Hospital (100-200)	1,00,000	1	9.0
5	Specialty Hospital (100-200 beds)	1,00,000	1	3.7
6	Intermediate Hospital Category A (100- 200 beds)	1,00,000	1	3.7
7	Intermediate Hospital Category B (<100	1,00,000	1	1.0
8	Family Welfare Centre	50000	1	0.08

9	Diagnostic Centre	50000	1	0.08
10	Dispensary for Pet and Animals	1,00,000	1	0.03
11	Nursing Home, Child welfare and Maternity Home	450000-1,00,000	1	0.2-0.3
12	Polyclinic	1,00,000	1	0.2-0.3
III	**Socio-Cultural Facilities**			
15	Recreational Club	1,00,000	1	1.0
16	Music, Dance & Drama Centre	1,00,000	1	0.1
17	Meditation & Spiritual Centre	1,00,000	1	0.5
IV	**Commercial**			
16	Community Centre with service centre	1,00,000	1	5.0
17	Weekly Markets	1,00,000	1 - 2	0.4
18	Organized informal eating spaces	1,00,000	1	0.2
V	**Recreational**			
17	District Sports Centre	1,00,000	1.0	8.0
18	Community Park	1,00,000	1	5.0
19	Community Level Multipurpose Ground	1,00,000	1	2.0
VI	**Security Services**			
20	Police Post (Area inclusive of Staff Quarters)	40,000-50,000	1	0.16
21	Police Station (Area inclusive of Staff Quarters)	90,000	1	1.5
22	Community Post office	1,00,000	1	0.25
VII	**Safety Services**			
23	Fire Station (5-7km Radius)	2,00,000	1	1.0
24	Sub fire station (3-4 km radius)	-	1	0.6
VIII	**Distribution Services**			
23	Petrol Pump/Gas Station*	1,00,000	1	0.3
24	LPG Godown/Gas Godown	40000-50000	1	0.110

Source: URDPFI

(Note: 1. Standards for Petrol Pump are based on Yamuna Expressway Authority Building Regulation, 2010 for Group Housing Projects. However, the same is recommended to follow for entire city
2. LPG godown area is based on norms of Department of Explosives)

Table 10-8 Guidelines for Provision of Facilities at Sector Level

S. No.	Sector Level Facilities	Population Served per	Area per Unit (ha)
	Education		
1	Crèche and Day Care Centre	5000-25000	0.1
2	Nursery School	5000-7500	0.1
3	Primary School	7500-15000	0.2
4	Senior Secondary School (VI-XII)	15000-25000	0.8
	Health		
5	Dispensary	7500-15000	0.1
6	Nursing Home	5000-7500	0.1
	Other Community Facilities		
7	Community Centre	7500-15000	0.4
8	Milk and Vegetable Booth	5000 - 7500	0.02
	Postal Services		
9	Post office counter without delivery	15000	0.0085

	Commercial		
10	Convenient shopping centre, sector shopping cum service centre	7500-15000	0.5
	Recreational		
11	Park & Playground	15000	0.25
12	Electric Substation(11KV)	As per Requirement	0.05
13	Auto & Taxi Stand	As per Requirement	0.05

Source: URDPFI

11 MAJOR PROPOSALS OF THE MASTER PLAN

11.1 Tourism Proposals

The land use plan designates two major tourism zones, strategically located for accessibility, scenic value, and integration with natural features and infrastructure to enhance visitor experience.

Table 11-1 Broad List of Tourism Projects

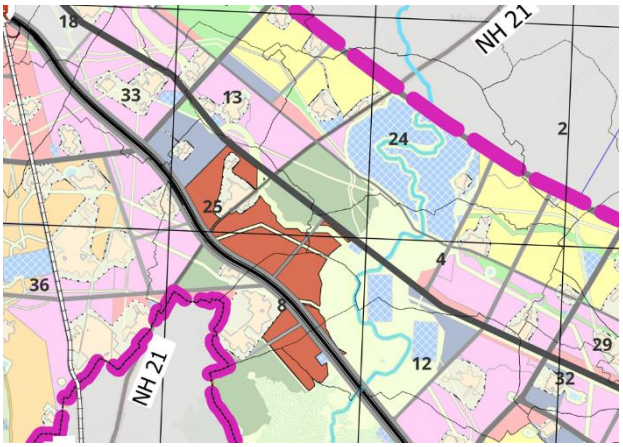
SL	Development Type
1	Golf Course and resort
2	Convention, conference and exhibition centre
3	Amusement park and theme park
5	Eco resort
6	Spas and Wellness Centre
7	Heritage Village and cultural complex
8	Luxury Hotels

Source: Consultant Analysis

11.1.1 Zone 1: Tourism Zone Near Karwan River

11.1.1.1 PARAMETERS FOR SELECTION OF THE LOCATION

Figure 11-1 Tourism Zone-I



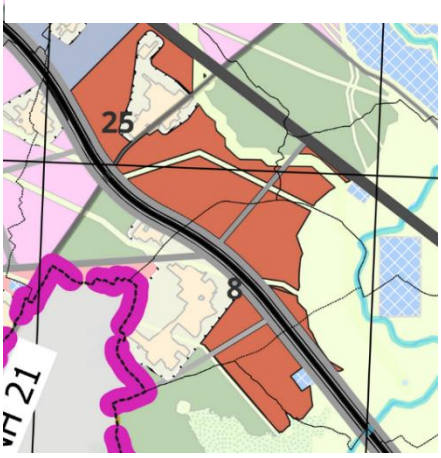
Source : Consultant

The first designated tourism zone is situated between Etmadpur Road and the Yamuna Expressway, adjacent to the Karwan River. This location has been chosen due to several significant factors:

- Scenic and Environmental Appeal
- Strong Connectivity
- Integration with Urban Infrastructure
- Peaceful and Secluded Atmosphere

11.1.1.2 DEVELOPMENT PROPOSITION

Figure 11-2. Tourism sectors



Source: Consultant

The **area along the Karwan River** presents an excellent opportunity for **tourism development**, encompassing various zones which are **Recreational, PSP (Public-Semi Public), and Commercial zones**.

Given its **strategic location, scenic beauty, and peaceful surroundings**, a **resort, hotel, or wellness retreat** can be **ideally proposed in Sector closer to forest.**

This sector is located near the **buffer area of the Karwan River**, offering a **tranquil and serene environment**, making it an ideal destination for:

- **Luxury resorts** that blend with nature and provide a relaxing getaway.
- **Boutique hotels** catering to travellers seeking comfort and exclusivity.
- **Wellness retreats** focused on rejuvenation, meditation, and holistic therapies.

The **calm and pollution-free atmosphere**, combined with **proximity to the river**, enhances the appeal of this location, making it **perfect for relaxation, eco-tourism, and sustainable tourism initiatives**.

Sectors indicated above have the potential to be developed as institutional tourism hubs. These areas can accommodate various components, including:

- **MICE (Meetings, Incentives, Conferences, and Exhibitions):** Establishing convention centres and event spaces can attract business tourism, boosting the local economy.
- **Disaster Training Centres:** Setting up specialized training facilities for emergency response and disaster management can serve as a crucial resource for professionals and institutions.
- **Museums and Art Galleries:** Developing cultural attractions can enhance tourism, preserve heritage, and provide educational opportunities for visitors.

It is recommended that Sector 05 and 06, located near the **Yamuna Expressway** and Chaugan **Forest Area**, be developed as a **biophilic wellness centre or resort**. This location offers several advantages that make it ideal for such a project:

- **Proximity to Nature:** The sector's closeness to the Chaugan Forest provides a serene and green environment, essential for wellness retreats that focus on relaxation and rejuvenation.
- **Accessibility:** Being near the Yamuna Expressway ensures seamless connectivity, making it convenient for visitors from nearby cities and beyond.

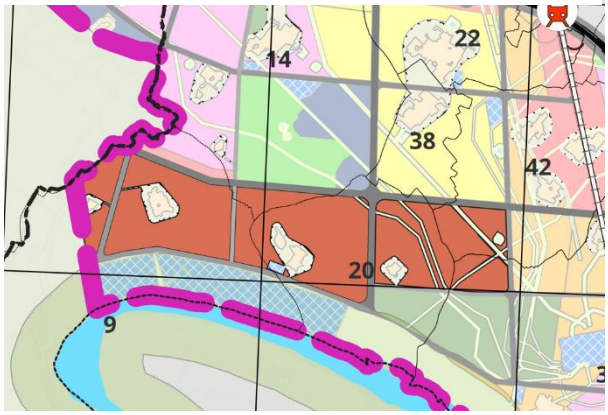
- **Sustainability and Eco-Tourism Potential:** A biophilic wellness centre would promote sustainable tourism by integrating natural elements, green architecture, and eco-friendly practices.

- **Health and Well-Being Benefits:** The presence of greenery, fresh air, and tranquil surroundings supports mental and physical well-being, aligning with the growing demand for holistic wellness destinations.

11.1.2 Zone 2: Tourism Zone Along the Yamuna River

11.1.2.1 PARAMETERS FOR SELECTION OF THE LOCATION

Figure 11-3 Tourism Zone-II



Source : Consultant

The second tourism zone is located adjacent to the Yamuna River having direct connectivity to the Yamuna Expressway through 80 mt. wide proposed road.

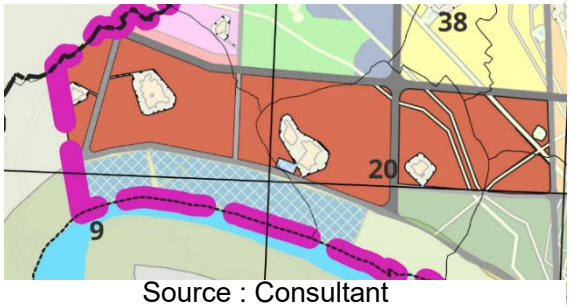
This area has been carefully selected due to the following advantages:

- **Gateway to the City**
- **Ease of Accessibility**
- **Riverside Attraction**

➢ The riverfront location provides opportunities for **boating, nature retreats, adventure tourism, and outdoor recreational activities**, catering to a diverse range of visitors.

11.1.2.2 DEVELOPMENT PROPOSITION

Figure 11-4 Tourism Sectors



Source : Consultant

It is recommended that Sectors near River Yamuna, be developed as a **commercial tourism hub**. Given its strategic location, this area is well-suited for the following developments:

- **Cultural & Culinary Experience Centres:** These can showcase local heritage, arts, and cuisine, attracting both domestic and international tourists.

- **Luxury & Budget Hotels:** Accommodating a diverse range of travellers by offering premium and affordable lodging options will enhance the area's tourism appeal.

- **Artisan Village & Experience Centre:** Creating a space for local artisans to exhibit and sell their crafts can promote cultural tourism while supporting local economies.

Key Advantages of This Location:

- **Excellent Accessibility:** Proximity to **NH 509** and the **Yamuna Expressway entry point** ensures seamless connectivity for tourists.
- **Surrounding Development:** The area is bordered by **mixed-use, residential, green patches, and institutional zones**, making it a dynamic and well-integrated space for tourism activities.
- **Economic and Tourism Growth:** Establishing a commercial tourism hub here would enhance the city's appeal as a vibrant destination while boosting employment and business opportunities
- It is recommended that **Sector facing NH 509** be designated as an **institutional zone** to facilitate various activities such as **conferences, meetings, and exhibitions**. This sector is strategically positioned to support institutional functions due to the following advantages:
- **Proximity to a Mixed-Use Area:** Being surrounded by **residential, commercial, and green zones**, the location ensures accessibility for participants while fostering a well-balanced urban environment.
- **Ideal for Business and Academic Events:** The development of conference centres and exhibition spaces can attract corporate, academic, and professional gatherings, enhancing the sector's significance.
- **Potential for Economic and Knowledge Exchange Growth:** Establishing an institutional hub can contribute to the city's intellectual and economic development by hosting business summits, industry expos, and training programs.
- **Seamless Connectivity & Accessibility:** The sector's positioning within a mixed-use framework provides convenience for attendees and encourages integrated development.

11.1.3 Sports Village

A Sports Village is proposed along the 80 m wide road near the Yamuna River as a hub for athletics, recreation, and community engagement. Key components include:

Stadium and Arenas: Multi-purpose stadium, indoor arenas (basketball, volleyball, badminton), and Olympic/training swimming pools.

Training Grounds: Fields for football, rugby, cricket; indoor/outdoor tennis courts; specialized athletics tracks and areas.

Fitness and Wellness Facilities: Modern gym, yoga and Pilates studios, physiotherapy, sports medicine, rehabilitation, spa, and relaxation facilities.

Accommodation and Lodging: Athlete housing with dormitory-style accommodations for national/international athletes. Guest accommodations for coaches, visitors, and tourists. VIP and luxury accommodations for special guests or events.

Administrative and Support Facilities: Offices for sports management, event coordination, and administrative work. Media centre and press rooms for covering events. Meeting rooms and conference facilities for training seminars or workshops.

Dining and Retail: Nutrition-focused food courts, cafes/restaurants, and sports retail outlets.

Recreational and Social Spaces: Community halls, walking/jogging tracks, bike paths, open spaces, and play areas.

Parking and Transport Infrastructure: Adequate parking, public transport access, shuttle services, and pedestrian/cyclist pathways.

Sustainability Features: Eco-friendly facilities, such as solar panels, rainwater harvesting, and waste management systems. Green spaces and landscaping that contribute to environmental conservation.

Event and Exhibition Spaces: Multi-purpose halls or auditoriums for cultural, sports, and community events. Exhibition areas for sports-related products and innovations.

Incorporating these facilities would create a dynamic and inclusive sports village that caters to athletes' needs while engaging the community and promoting a healthy, active lifestyle. Authority

11.1.4 MICE

To promote MICE (Meetings, Incentives, Conferences, and Exhibitions) tourism, **150 ha** has been allocated near the Yamuna Expressway with direct connectivity to Delhi and Noida. Key projects include:

- **Convention & Exhibition Centre:** State-of-the-art facility for global conferences and exhibitions.
- **Business Parks & Incubators:** Focused on tourism and hospitality innovation.
- **MICE Resorts & Hotels:** Luxury stays with meeting rooms, banquet halls, and team-building spaces.
- **Cultural Integration:** Heritage-themed MICE packages with curated tours of the Taj Mahal, Agra Fort, and Fatehpur Sikri.

11.2 Transportation

The current and future travel demand for the Agra Urban Centre has been assessed based on the impacts of land-use configurations on the transport system and provides recommendations for infrastructure planning and policy formulation. Given the city's large spatial extent and mixed-use character—encompassing residential, industrial, and commercial zones—integrating land use with transport planning is critical for ensuring efficient mobility and sustainable growth. Transportation proposals has been divided intercity & intracity modes.

11.2.1 Intercity Connectivity

11.2.1.1 Proposal of HIGH-SPEED Connectivity from Noida International Airport

The Noida International Airport (Jewar Airport) is poised to become a major aviation hub in North India. Establishing high-speed rail connectivity between the airport and Agar Urban Centre would significantly boost regional connectivity, facilitating seamless movement of goods, workers, and investors.

Currently, road connectivity between Noida International Airport and Agra is primarily dependent on the Yamuna Expressway, which takes approximately 2 to 2.5 hours for travel. High-speed rail could reduce this journey to under an hour, making it feasible for business travellers, workers, and logistics companies to move quickly and efficiently between the airport and the industrial city.

Considering the high trip volume between the Noida International Airport and the Agra Urban Centre, an alternative rail-based transport mode is recommended.

11.2.1.2 Integration Of Agra Urban Centre with Agra Metro

The Agra urban centre will attract **high volume of worker trips** commuting daily from Agra and nearby regions. Dependence on private vehicles or conventional road transport could lead to congestion, delays, and inefficiencies.

Tourism and recreation are proposed as one of the major activities in the Agra urban centre. Hence **tourism-based trips** between Agra city and Agra Urban centre would be a major component of the traffic flow.

To cater to this high traffic volume, a mass transit mode is required. **Since Agra already has metro rail network, the same is proposed to be extended to the Agra Urban Centre.**

Agra City is serviced by metro rail. The phase 1 of the Agra Metro has two lines, line 1 running between Sikandra and Taj East Gate and line 2 running between Agra Cantonment and Kalindi Vihar.

Extension of the metro line to the Multi modal transport hub is proposed to promote ease of access to the Agra Urban Centre.

The metro lines are proposed to be extended to two locations in the Agra Urban Centre

1. AUC line 1: To the multi modal transport hub along NH 509 and
2. AUC line 2: The industrial sector in the Agra Urban Centre along NH-19

AUC Line 1 would cater to the intercity trips between the residential and the recreational centres in the Agra Urban centre.

AUC line 2 would cater to the industrial working population in the Agra Urban Centre.

The two separate lines would reduce the trip load on any single line of metro.

11.2.1.3 INTER CITY BUS CONNECTIVITY

Mathura, Hathras, Aligarh and Firozabad are some key regional centres located in the vicinity of AUC**.** While Mathura will also have connectivity through the High-Speed Rail Connection from NIAL which is proposed as a part of the transport master plan of Agra Urban Centre, Hathras and Aligarh would be accessible thorough the NH509 and the proposed new National Highway connecting Yamuna expressway and Aligarh. Firozabad can be accessed via NH-19 from the southern exit of Agra Urban Centre. It is proposed that AUC will be connected through intercity bus services through following:

1. It is proposed that the regional bus service connects the Agra Urban Centre at the Multimodal Transport Hub (MMTH). The MMTH would serve as an interstate bus terminus (ISBT) for the Agra Urban Centre.

2. Bus service from Agra is proposed to be extended along NH-509 till the Multi-modal interchange. A bus terminal is proposed in AUC along NH-509 to accommodate transfer needs in the southern part.
3. Existing bus service from Agra run on NH-19 till Tundla. A bus terminal is proposed at the entry to AUC.

11.2.2 Intracity Connectivity

11.2.2.1 Proposal Of Neo Metro/ LRT /Monorail For Mass Transportation Within Agra Urban Centre

To ensure smooth movement of people between the various sectors within the Agra Urban Centre, light rail transit running within the urban centre is recommended as a mass transport mode.

Neo Metro, a state-of-the-art mass transit mode, is envisioned to serve as the backbone of mobility within the Agra Urban Centre. The Metro Neo is a light rail transit system in India that is designed to be comfortable, energy efficient, and environmentally friendly.

The integration of a light rail mass transit mode within the Agra Urban Centre's transportation infrastructure will significantly boost industrial productivity, attract investments, and enhance overall urban livability. By facilitating efficient movement of people, light rail transit would contribute to a sustainable, connected, and resilient urban environment.

LRT is proposed along the arterial roads connecting the Multimodal Transport Hub to the various sectors of the Agra urban centre. Neo metro as an LRT mode may be explored for the same.

LRT in Agra Urban centre is expected to serve the following:

1. Large tourist footfall is expected in the Agra Urban Centre as tourism and recreational activities have been proposed as major economic areas. The annual tourist footfall in Agra district is about 1 crore, while that in Mathura is about 6 crores. The Agra Urban Centre expects to attract a part of these visiting tourists. Assuming about 30% share of Agra's tourist population to Agra Urban Centre would yield a daily footfall of more than 20,000 visitors.

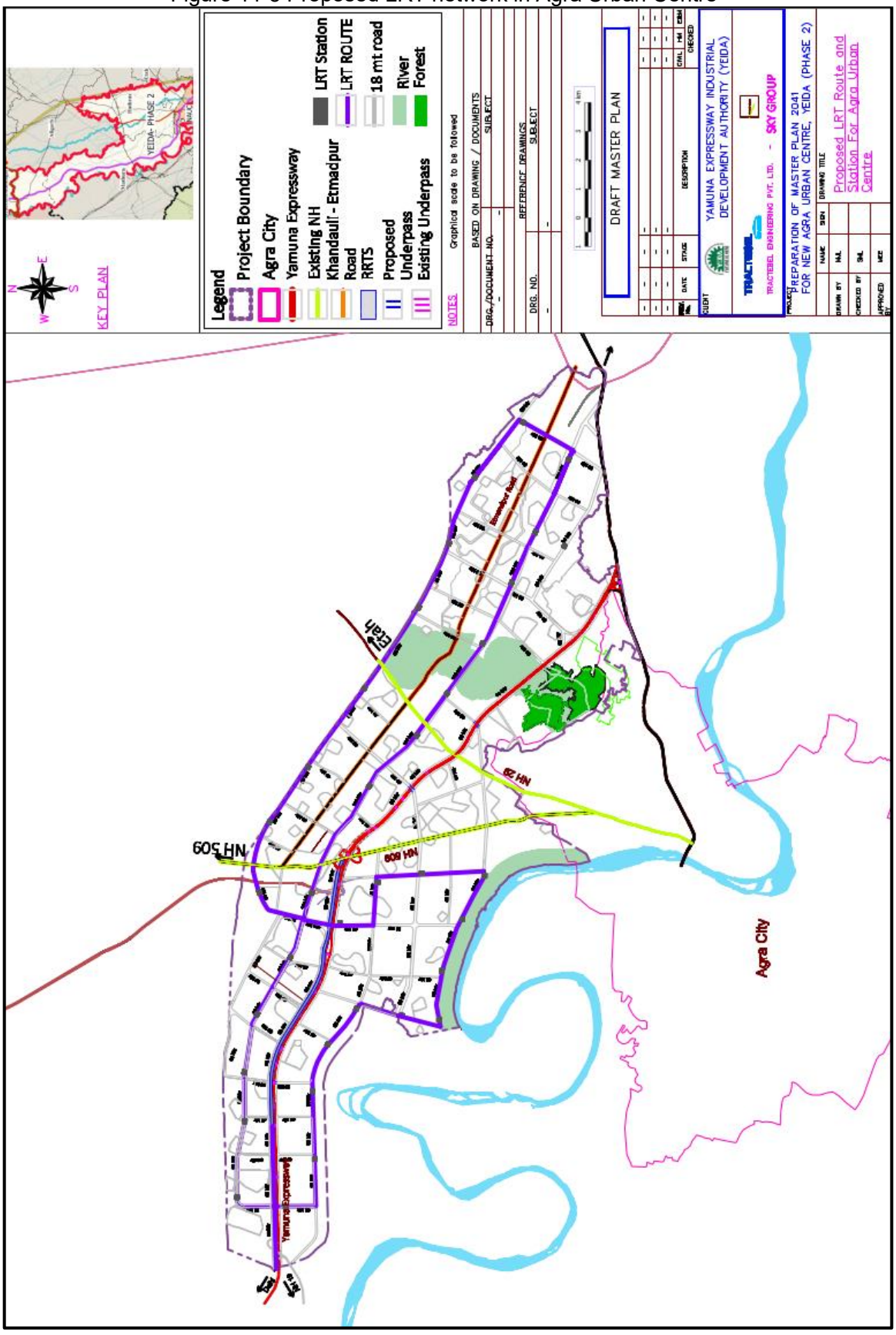
   In addition to tourists, the Agra Urban centre is also being promoted for MICE related activities which would further visitor population in the area.

   LRT would be a feasible medium capacity mass transport mode to cater to this need.

2. Agra Urban Centre is expected to generate an employment of about 10 lakhs. Around 65-70% of these employees would be residing and traveling within the Agra Urban Centre. Availability of a comfortable public transport mode would decrease the usage of cars within the Agra Urban Centre.

About 30% of the workers are expected to travel from nearby cities and villages. Agra being the nearest urban hub would be a preferable choice for a vast majority of this segment. It is already proposed to extend the Agra metro to the Agra Urban centre. Availability of a convenient public transport system within the Agra Urban Centre would further decrease usage of personal modes for travel

Figure 11-5 Proposed LRT network in Agra Urban Centre



Source- Consultant

11.2.3 City Bus/ Feeder Bus Service for Movement Within Agra Urban Centre

City feeder bus service is proposed as a mass transport mode covering all sectors of the Agra Urban Centre.

City bus services play a crucial role in urban transport, offering an affordable, efficient, and sustainable mobility solution. It serves both high density and low-density areas, and provides last-mile connectivity to metro, rail, and other transit systems.

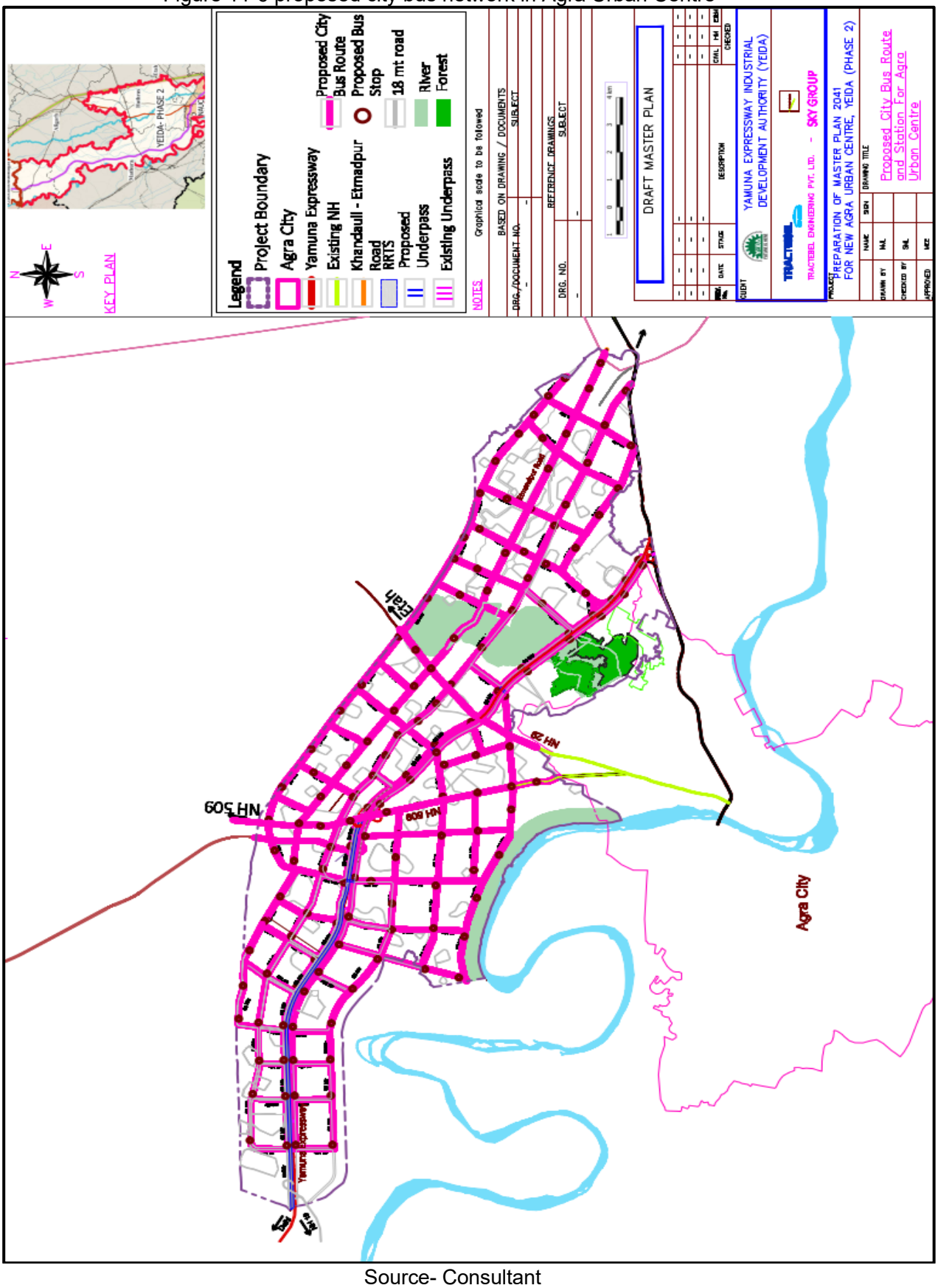
E- vehicles are recommended for the fleet for the city bus system.

City Bus Service within the Agra Urban Centre is proposed connecting the Multimodal Transport Hub to the various sectors of the Agra urban centre.

Buses provide an affordable mass transport option that is effective in providing coverage to all areas with various densities and uses.

Bus route coverage has been provided for all arterial roads. Bus Stops have been proposed at 750m – 1500m along the bus routes to provide ease of access.

Figure 11-6 proposed city bus network in Agra Urban Centre



Source- Consultant

11.2.4 Last Mile Connectivity within Agra Urban Centre

The purpose of last mile connectivity is to provide safe, affordable, low-carbon, and **efficient last-mile connectivity** between mass transit nodes (railway stations, bus terminals, metro/BRT corridors) and residential, commercial, institutional, and tourism destinations, while reducing traffic congestion and vehicular emissions. To address the mobility needs of various commuter segments within the AUC, a few last-mile connectivity solutions have been proposed. Some key options proposed for AUC include Personal Rapid Transit(PRT), E Rickshaw and E Likes. The details of each options are as follows"

a) **Personal Rapid Transit (PRT) system:** which is particularly well-suited to serve the needs of tourists. With its unique, automated, and futuristic appeal, the PRT system is expected to become a major attraction, enhancing the overall visitor experience. For the efficient operation of the PRT system, a dedicated corridor (at-grade or elevated) will be essential to ensure uninterrupted and smooth travel. Given its potential to provide point-to-point connectivity and on-demand service, the PRT system is ideally positioned to connect the Multi-Modal Transport Hub (MMTH) with key tourist destinations across the AUC. By offering sustainable, comfortable, and engaging transit experience, the PRT will not only ease last-mile travel but also contribute to promoting tourism and reducing road congestion in the area.
Typically, the catchment area of PRT is 2 to 8 sq km. PRT is automated pods carrying 4 to 6 passengers in each pod. Since it is an expensive option, it is suited to high footfall tourism clusters, connecting MMTH with the proposed tourism hot spots.

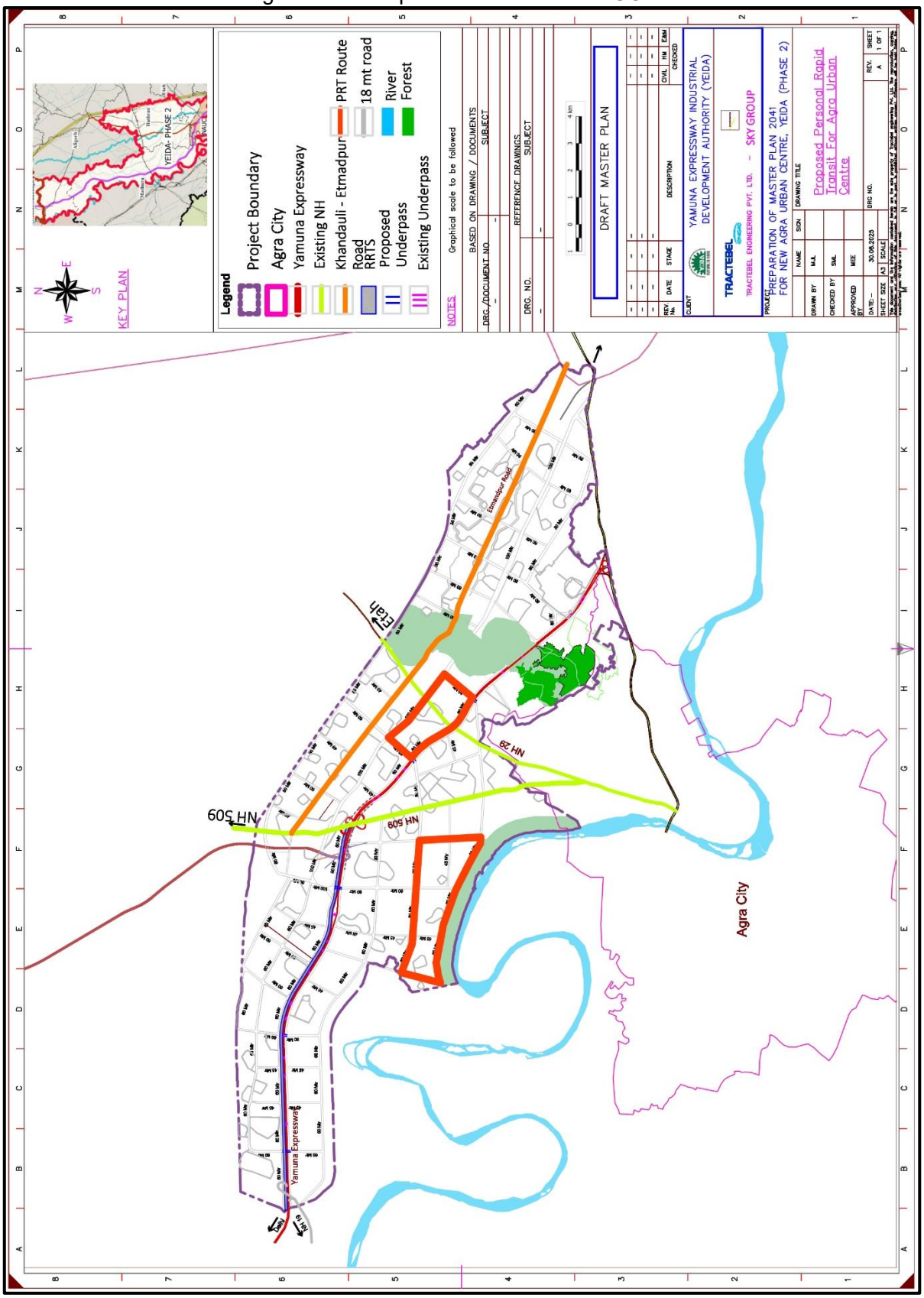
b) **E rickshaws and e bikes:** In addition to the PRT system, e-rickshaws and e-bikes are proposed as cost-effective and sustainable options for last-mile connectivity within the AUC. These modes of transport offer an affordable, eco-friendly solution that can cater to a wide range of daily commuters, including residents and workers. Primary feeder from metro/rail/bus stations. **E rickshaws are suitable to intra-neighbourhood connectivity in abadi areas, and heritage zones. The infrastructure interventions required are designated e rickshaw lanes on arterial and sub arterial roads. Designated e rickshaw bays will be required at metro and railway stations, bus terminals, tourism nodes and major markets. These places will have dedicated curb side pickup and drop off points,** typically catchment area of e rickshaw is 1 to 4 sq km and one e rickshaw serves 1500 population. Route rationalization with fixed feeder loops.
Operational guidelines for e rickshaw and e bikes will be formulated which will include route rationalisation, charging stations and fare regulation. To ensure their successful integration into the urban mobility, it is essential to implement a well-regulated and efficient system for the operation of e-rickshaws and e-bikes. This should include the development of dedicated lanes, clear parking zones, and supportive local-level policies and regulations.

11.2.5 Ride Hailing and ride sharing Services

Ride-sharing services play a crucial role in improving urban transportation by offering **flexible, cost-effective, and convenient** mobility solutions. One of the key benefits of ridesharing is its ability to reduce traffic congestion. By encouraging shared rides and carpooling, these services optimize vehicle occupancy, thereby decreasing the number of private vehicles on the road. From an economic perspective, ride-sharing offers an affordable and convenient alternative to private vehicle ownership. Unlike fixed-route public transport services, ridesharing operates 24/7, ensuring availability even in high-demand areas.

Pick up zones for ride sharing services is proposed at the Multimodal Transport Hub to encourage usage of public transport and reduce private modes. Charging stations for e-vehicles are also proposed in various sectors encouraging ride-sharing services.

Figure 11-7: Proposed PRT Route in AUC



Source: Consultant

11.2.6 Demand based Right of Way assignment

The right of ways/ road widths proposed for the Agra Urban centre have been derived based on existing traffic characteristics and land use proposals in the various sectors.

An efficient transport network is not solely dependent on motorized vehicles but must also incorporate pedestrian and cycle track networks to ensure sustainable, safe, and accessible urban mobility. Prioritizing non-motorized transport (NMT) enhances urban livability, reduces congestion, and promotes environmental sustainability. Seamless connectivity between pedestrian/cycle tracks and bus/metro stations would also improve public transport efficiency.

The road sections for the Agra Urban Centre have been proposed including pedestrian pathways and cycle tracks.

11.2.7 Parking Infrastructure

Private transport modes would constitute a significant part of the modal split in the Agra Urban centre. The tourism and recreational activities would attract private modes such as cars and tourist vehicles. Work trips related to the industrial sectors would also have a share of private modes. Private modes would also constitute a part of the Intercity and intra-city trips related to the residential sectors.

In this context, robust parking infrastructure would be necessary to prevent on-street parking, reducing congestion and improving road safety. Dedicated parking zones for freight vehicles would facilitate seamless logistics and supply chain operations. Park-and-ride facilities would also support the use of public transport and non-motorized transport options.

Hence, integration of multi-level and smart parking solutions is one of the strategies for the Agra Urban Centre.

11.2.8 Support Infrastructure for Electric Vehicles

Electric vehicles represent sustainable and clean transport mode for urban transport. However, support infrastructure for electric vehicle is still in short supply in the urban scenario. To promote such vehicles, charging stations have been planned in various sectors in the Agra urban centre to accommodate all range of vehicles from two wheelers to buses.

As cities transition toward sustainable and eco-friendly mobility solutions, electric vehicles (EVs) are playing an increasingly vital role in urban transport systems. However, the widespread adoption of EVs depends on the availability of a well-planned charging infrastructure. Integrating **EV charging stations** into urban transport planning is essential to support green mobility, reduce emissions, and ensure the seamless operation of electric vehicles.

E-charging points are planned at parking areas in the Multimodal transport hub, parking areas at the industrial and commercial zones and at the IPT stands. Dedicated charging stations are proposed in all sectors

11.2.9 Road Safety Infrastructure

Road safety infrastructure is a critical component of the overall transport strategy in the Agra Urban Centre (AUC). To enhance safety for all road users, a range of measures can be implemented. These include adopting safer road design principles, installing appropriate traffic control devices, and providing dedicated facilities for pedestrians and cyclists. Effective speed management through the use of physical measures and enforcement tools—such as speed humps and speed enforcement cameras—can help deter over-speeding and ensure compliance with speed limits.

In addition to fundamental design and infrastructure elements such as optimal road geometry, safe interchanges, adequate street lighting, and protective barriers, the integration of intelligent transport systems (ITS) is essential. These include surveillance cameras, automated traffic signals, real-time incident detection systems, and emergency response mechanisms, all strategically deployed at critical points across the AUC. Collectively, these interventions will not only improve traffic flow but also significantly reduce the likelihood and severity of road crashes, making urban mobility in Agra safer and more sustainable.

11.2.10 Transit Oriented Development

Transit-Oriented Development plays a crucial role in modern transport planning by fostering sustainable, efficient, and well-connected urban environments. By integrating land use with public transit, TOD enhances accessibility, reduces congestion, and promotes economic development, making cities more liveable and resilient for the future.

The proposed Regional Rapid Transit System (RRTS) network, along with the planned extension of the Agra Metro, will play a critical role in shaping future transit-oriented development within the Agra Urban Centre (AUC). The integration of these high-capacity mass transit systems with subsequent zonal planning exercises will enable the systematic identification of priority areas suitable for Transit-Oriented Development (TOD).

The operationalisation of TOD within the AUC shall be guided by the Uttar Pradesh Transit-Oriented Development Policy, ensuring alignment with state-level planning norms related to influence zones, land-use mix, density enhancement, and multimodal connectivity. The policy framework will provide the basis for regulating development intensity, urban form, and infrastructure provisioning in areas influenced by major transit corridors and stations.

At present, as the Agra Metro extension proposal is still at a conceptual and evolving stage, it is not feasible to precisely delineate TOD influence zones within the AUC. Accordingly, the identification and notification of TOD areas will be undertaken in a phased manner, following the finalisation of metro alignments, station locations, and RRTS corridors. These zones shall be formally incorporated through detailed zonal plans and statutory planning instruments at an appropriate stage.

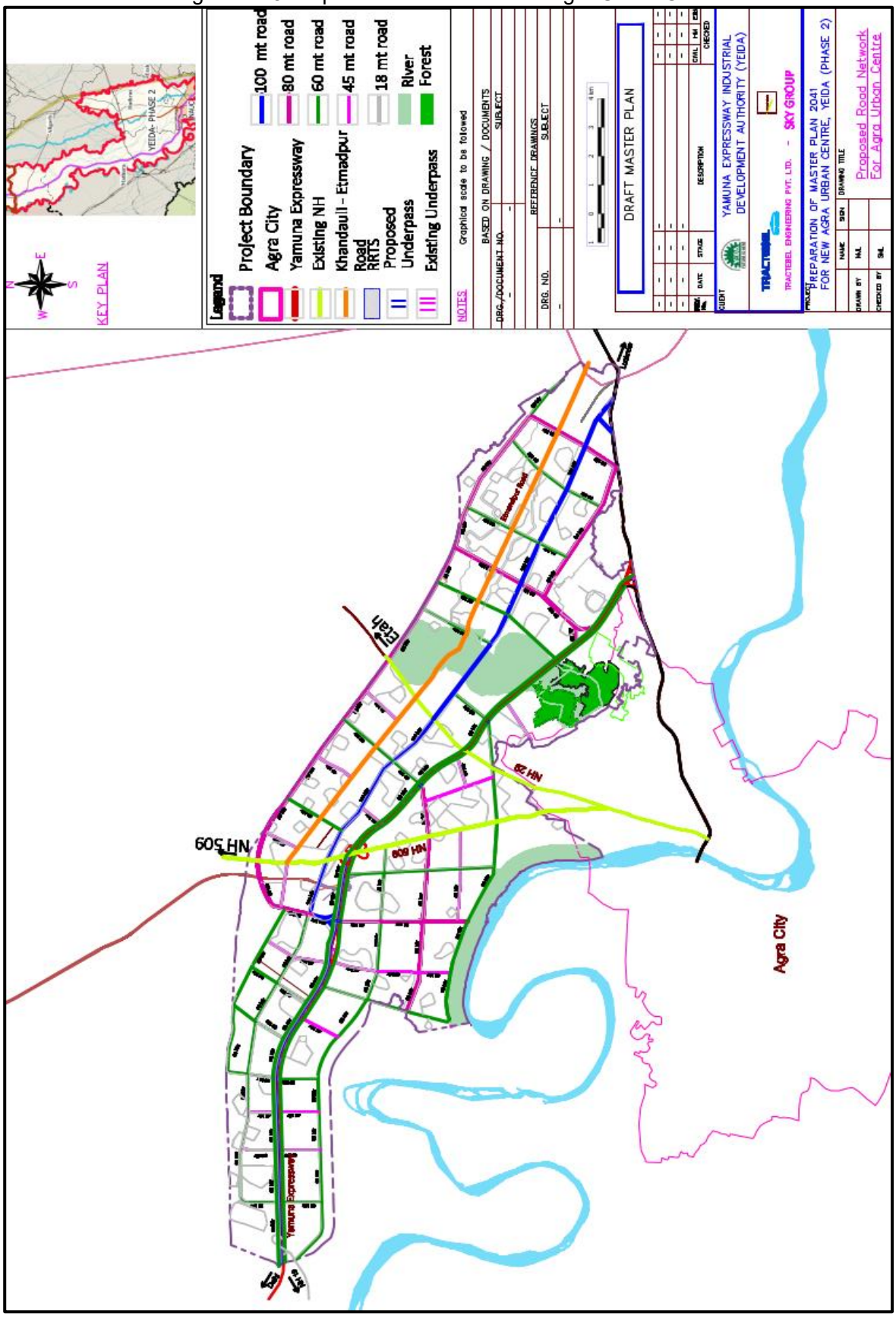
11.2.11 Transportation Plan for Agra Urban Centre

11.2.11.1 Circulation Pattern Within Agra Urban Centre

The circulation pattern within the Agra Urban Centre consists of a network of roads with hierarchy levels of **100, 80m, 60m and 45m**. These roads make the segregation between the major sectors of the Agra Urban centre.

- The network consists of a 100m arterial road connecting NH-19 and Yamuna Expressway which serves as the spinal road in the Agra Urban Centre. A well-planned network of 80m, 60 and 45m in hierarchical are thereafter proposed uniformly bounding the various sectors.
- A 100m parallel road is proposed on the northern side of the Yamuna Expressway. This road, in addition to catering to the intra-city transport would also house the high-speed rail proposed to connect the Agra Urban centre and the Noida International Airport.
- Two 60m parallel road is proposed along the Yamuna Expressway on both side with the aim of catering to the intracity transport
- The NH-509, NH 19 and NH-21 have been integrated within the road network plan. They would be the key intercity connections.
- A 60m parallel road is proposed on the southern side of the Yamuna Expressway with the aim of catering to the intracity transport
- The NH-509 and NH-21 have been integrated within the road network plan. They would be the key intercity connections.
- To enhance the flow of traffic and improve accessibility between the northern and southern segments of the Yamuna Expressway, two underpasses have been proposed along the 60-meter roads.
- The abadi areas have been catered with a ring road with would connect to the service roads of all the proposed arterial and sub-arterial roads.

Figure 11-8 Proposed Road Network in Agra Urban Centre



Source- Consultant

11.2.11.2 Road Hierarchy

Arterial Roads

In the road network plan of the Agra Urban Centre, the arterial roads ranging from 60-100m width have been proposed connecting the major regional connectors, multimodal transport hub and forming major sectoral dividers between residential, industrial and other uses.

Figure 11-9: Proposed Road Section of Arterial Road with LRT-100 m

Figure 11-10: Proposed Road Section of Arterial Road (80-meter with LRT)

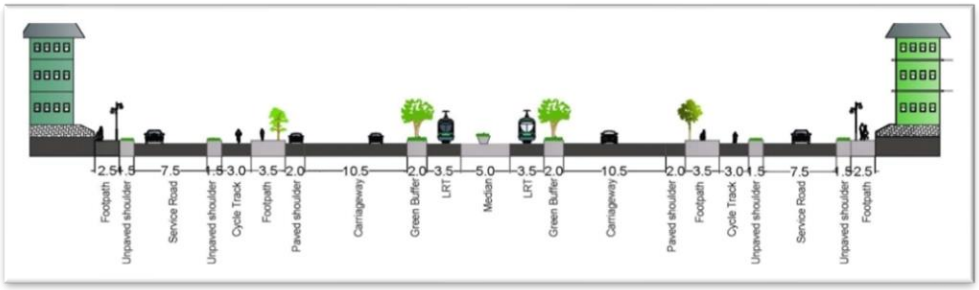


Figure 11-11: Proposed Road Section of Arterial Road (80 m wide without LRT)

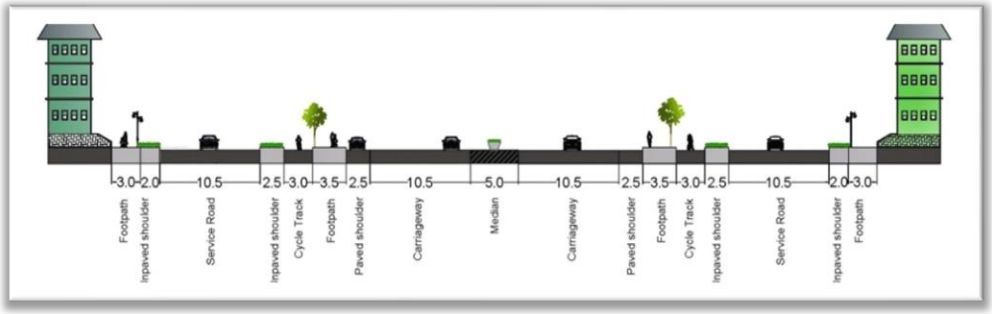
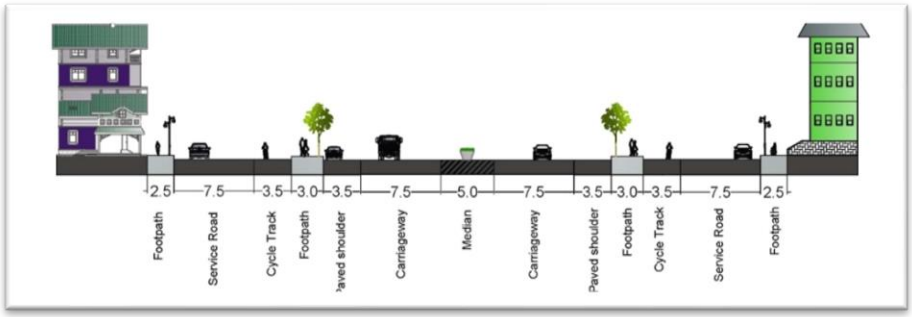


Figure 11-12: Proposed cross sections of 60 m wide roads



Source: Consultant

11.2.11.3 Interchanges

To facilitate efficient traffic flow and ensure the unobstructed movement of high-speed traffic within the Agra Urban Centre, four strategically planned interchanges have been proposed. The design and placement of these interchanges are the result of comprehensive traffic studies conducted in the region, aligning with both current demands and future projections for the Agra Urban Centre. The locations of the proposed interchanges are illustrated in the accompanying map, and are as follows:

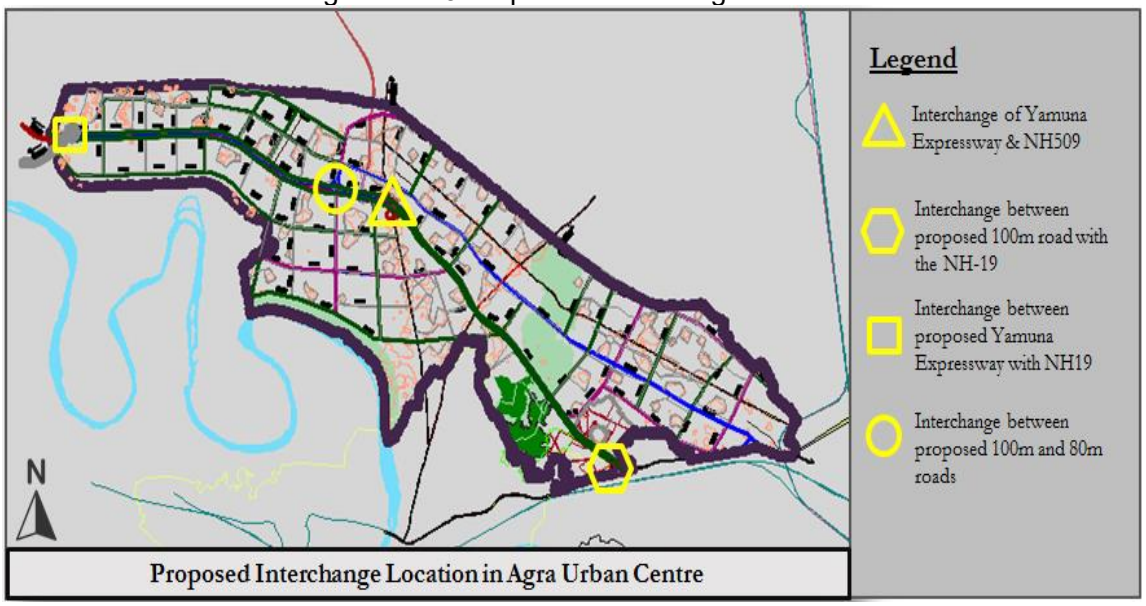
1 Interchange between Yamuna Expressway & NH509

2 Interchange between the proposed 100m road and NH-19

3 Interchange between the proposed Yamuna Expressway and NH-19

4 Interchange between the proposed 100m and 80m roads

Figure 11-13 Proposed Interchange Location



Source: Consultant Analysis

11.2.11.3.1 INTERCHANGE OF YAMUNA EXPRESSWAY AND NH509

Figure 11-14 Cloverleaf Interchange Illustration

Source : Consultant

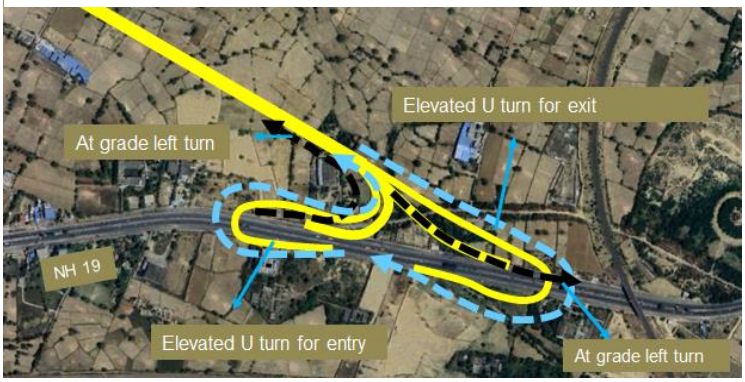
The interchange between Yamuna Expressway and NH-509 at present is serviced by a half clover leaf junction. At present it provides access into the Agra Urban centre from NIAL and exit of traffic from Agra Urban centre towards NIAL.

The other half of the clover leaf is proposed to be completed. It would provide entry and exit access to vehicles travelling from Agra

Urban Centre towards Agra ORR junction end of the Yamuna Expressway. The exists of the clover are thereafter connected to the 100m and 60m parallel roads to Yamuna Expressway, through which the traffic would flow to the rest of the Agra Urban centre. Please refer to the diagram below:

11.2.11.3.2 INTERCHANGE BETWEEN PROPOSED 100M ROAD WITH THE NH-19

Figure 11-15 interchange between proposed 100m and NH- 19

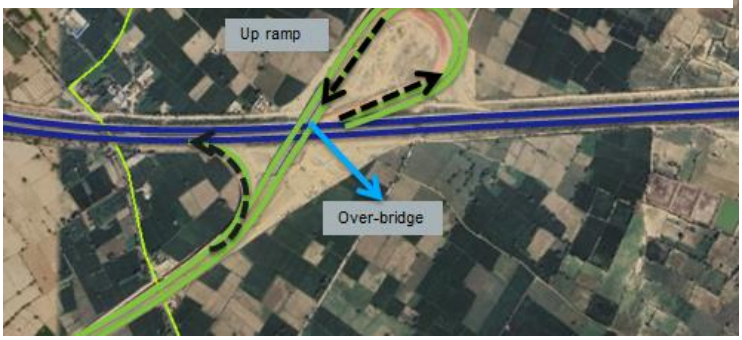


Source : Consultant

The interchange between NH-19 and proposed 100m road within the Agra Urban Centre at the entry point on the south is proposed in the form of elevated flyovers from the NH-19. Access to AUC from NH19 will be provided via an at-grade road for vehicles coming from the west. For vehicles approaching from the east, an elevated U-turn is proposed. For exit from AUC, an at-grade road is planned for vehicles exiting towards the east, while an elevated U-turn will be implemented for vehicles exiting towards the west.

11.2.11.3.3 INTERCHANGE BETWEEN PROPOSED Yamuna Expressway WITH NH 19

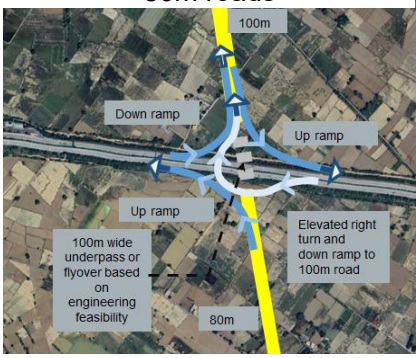
Figure 11-16 Interchange between Yamuna Expressway with NH 19



Source : Consultant

The interchange between the Yamuna Expressway and NH 19 serves a critical function in facilitating the entry and exit of commuters traveling from Delhi towards Agra city by connecting to NH 44, as well as vice versa. Moreover, it plays an essential role in providing access to the Agra Urban Centre, acting as a key transportation link for those entering the city.

Figure 11-17 Interchange between Proposed 100m and 80m roads



Source : Consultant

11.2.11.3.4 INTERCHANGE BETWEEN YAMUNA EXPRESSWAY WITH PROPOSED 100 M AND 80 M ROAD

The interchange between the 100 m and 80 m roads is proposed to be linked via a 100 m underpass, facilitating seamless connectivity between the northern and southern sections of the Urban Centre. This interchange will also provide convenient access points to and from the Yamuna Expressway, improving traffic flow for those entering or exiting the Agra Urban Centre. Access from the Yamuna Expressway is proposed through a down ramp, complemented by an elevated U-turn, while up-ramps are designed to allow smooth entry onto the Yamuna Expressway.

11.2.12 MMTH

The multi modal transport hub is proposed in the northern part of the Yamuna Expressway. The major existing regional access to the MMTH from the Yamuna Expressway is through NH-509. A 100m road is proposed connecting the Yamuna Expressway and the NH-19 which would be the arterial road connecting the MMTH to the region.

The MMTH is proposed to be built on an area of about 65 Ha. It is planned to integrate regional and local transport within the Agra Urban Centre.

The key features of the MMTH are as follows:

1. Core Transport Infrastructure

The foundation of a multi-modal hub consists of various transportation systems operating within a unified space:

- High speed rail connectivity from NIAL
- Metro line connecting Agra
- LRT station connection various sectors of Agra Urban Centre
- Intercity Bus Station
- Bus Service to Agra
- Feeder Bus Service within Agra Urban Centre
- Para Transit Stand
- Pick up zones for Ride Hailing and Ride sharing services
- Park and ride for cars
- Cycle parking station

2. Passenger Amenities & Convenience Facilities

A well-designed transport hub enhances user experience by providing essential passenger services:

- **Wayfinding & Information Systems** – Digital displays, signages, and real-time travel updates for easy navigation.
- **Ticketing & Payment Integration** – Unified smart card systems, mobile apps, and QR-code-based ticketing for seamless fare collection.
- **Waiting Areas & Lounges** – Comfortable seating, charging stations, and climate-controlled waiting zones.
- **Restrooms & Drinking Water Facilities** – Ensuring basic hygiene and convenience for travellers. Transit hotels can be integrated within the facility.
- **Shops & Food Courts** – Retail stores, restaurants, and convenience kiosks for passengers in transit.

3. **Smart Mobility & Technology Integration**

Modern transport hubs incorporate digital solutions to improve efficiency and safety:

- **Intelligent Transport Systems (ITS)** – Real-time traffic management, automated signals, and congestion monitoring.
- **CCTV Surveillance & Security Systems** – Ensuring safety through 24/7 monitoring and emergency response.
- **Wi-Fi & Connectivity Services** – Free high-speed internet access for commuters and transit staff.

- **Automated Fare Collection (AFC) Systems** – Contactless payment solutions to enhance transit speed.

4. Intermodal Connectivity & Accessibility

- The multi-modal hub would be designed to provide seamless transitions between transport modes:
  Integrated Pedestrian Walkways – Safe and accessible footpaths, skywalks, and pedestrian crossings.
- **Universal Accessibility Features** – Ramps, elevators, tactile paving, and assistive services for persons with disabilities (PwD).

11.2.13 Freight Transportation and Multimodal Logistics Hub (MMLH)

The major industrial categories proposed in the Agra Urban Centre are food processing, leather & handicrafts, light manufacturing & toy park and ITes. Among these there are no major freight movement expected from the ITes sectors. The leather & handicrafts light manufacturing & toy parks are assumed to experience weekly cargo movements while the food processing is expected to experience daily cargo movements.

The logistic hub in the Agra Urban Centre is proposed to become the regional hub for e-commerce warehousing and distribution as well as warehousing hub for agro produce in the region.

Freight transport planning involves the movement of different types of cargo, each with unique handling, storage, and transportation requirements. Cargo is broadly categorized based on its **physical state, handling requirements, perishability, and risk factors**.

Considering the industrial typology in the Agra Urban Centre, the following cargo types are expected:

1. General Cargo (Break-Bulk Cargo)

- Consists of **individually packed or unitized goods** that are transported in boxes, crates, pallets, or drums.
- Examples: **Consumer goods, machinery, textiles, furniture**
- Typically handled using **forklifts, cranes, and manual labor**.
- To be transported via **trucks and rail** in containers or as loose cargo.

2. Refrigerated Cargo (Perishable Cargo)

- Goods that require **temperature-controlled transportation**.
- Examples: **Fresh fruits, vegetables, meat, seafood, dairy products**.
- Transported using **reefer containers, refrigerated trucks, and cold storage facilities**.

3. E-Commerce & Express Cargo

- Fast-moving goods requiring **quick delivery through air, rail, and road transport**.
- Examples: **Online retail shipments, courier packages, urgent documents**.
- Requires **efficient logistics hubs, express delivery networks, and last-mile solutions**.

Hence the facilities in the multi modal logistic hub and the road network is designed to accommodate the above cargo types.

The proposed **multimodal logistics hub** is a strategically designed facility that integrates multiple transportation modes—rail and road, —to enable seamless freight movement and connected to city level wholesale nodes. The hub is designed to optimize supply chain efficiency, reduce transit costs, and enhance cargo handling capacity.

1. Strategic Location & Connectivity

The MMLH is located on the southern part of the Agra Urban Centre adjacent to the NH-19. The MMLH can be accessed from the industrial sectors by100m and 80m wide arterial roads.

It is also close to the Tundla EDFC station and a railway siding from the Tundla EDFC is proposed into the MMLH of the Agra Urban Centre.

The total extent of the MMLH is about **629 Ha**

2. Efficient Cargo Handling & Storage Facilities

The hub must facilitate fast and secure handling of different types of cargo.

Automated Warehousing & Distribution Centres – High-capacity storage warehouses are proposed to be developed in the MMLH

Cold Chain & Perishable Goods Storage – Refrigerated units for food, and temperature-sensitive cargo are proposed.

Bulk Handling Terminals with dedicated areas for large-scale goods, hazardous materials, and oversized cargo.

Cross-Docking Facilities, minimizing storage time by directly transferring goods from inbound to outbound transport are proposed.

3. Smart Logistics & Digital Integration

Technology plays a crucial role in optimizing hub efficiency and tracking shipments. Some of the features proposed for integration of technology into logistics are highlighted below.

- **Real-Time Tracking & Fleet Management** – GPS-based monitoring and RFID-enabled cargo tracking.
- **Automated Inventory Management** – AI-driven systems for warehouse optimization and demand forecasting.
- **Intelligent Transport Systems (ITS)** – Digital platforms for route optimization and congestion management.
- **Integrated ERP & Blockchain Systems** – Ensuring transparent, secure, and streamlined logistics operations.

11.2.13.1 ROAD BASED FREIGHT TRANSPORTATION

Key Components of the Road Freight Transport Plan are as follows:

- **Freight Corridors**: Dedicated truck lanes to reduce congestion on mixed-use roads are proposed.
- **Road design**: Light Commercial Vehicles (LCVs) and medium and refrigerated trucks for perishables are the expected to be generated from the industrial sectors within the Agra Urban Centre.

- **Logistics Parks & Warehousing Hubs**: Dedicated logistic park is proposed near national highways 19 for easy entry and exit into regional roads.

11.2.13.2 RAIL BASED FREIGHT TRANSPORTATION

As dedicated rail siding from the Tundla EDFC station is proposed to be extended into the Agra Urban Centre in the multimodal logistic hub. Regional and National cargo pertaining to e-commerce and agro produce would be viable commodities to be transported from the logistic hub of the Agra Urban Centre.

11.3 Physical Infrastructure

11.3.1 Water Supply

11.3.1.1 SOURCE OF WATER SUPPLY

Water resources need to be planned and managed to avoid future water issues or crisis. The vision is intended to provide the basic amenities within the project area in view of the availability of water.

Water demand for the project area has been calculated based on the projected population, with supply drawn from identified sources. Borewells will be used only for recharge and groundwater table improvement during the rainy season, subject to authority approval. Discharge data from Gokul Barrage, Yamuna River, shows a minimum flow of 746 cusec (June 2022), against the Agra Urban Centre's maximum demand of 154 cusec/day (375 MLD), confirming sufficient availability to meet daily requirements.

3 Main Sources of water in Agra Urban centre are mentioned below –

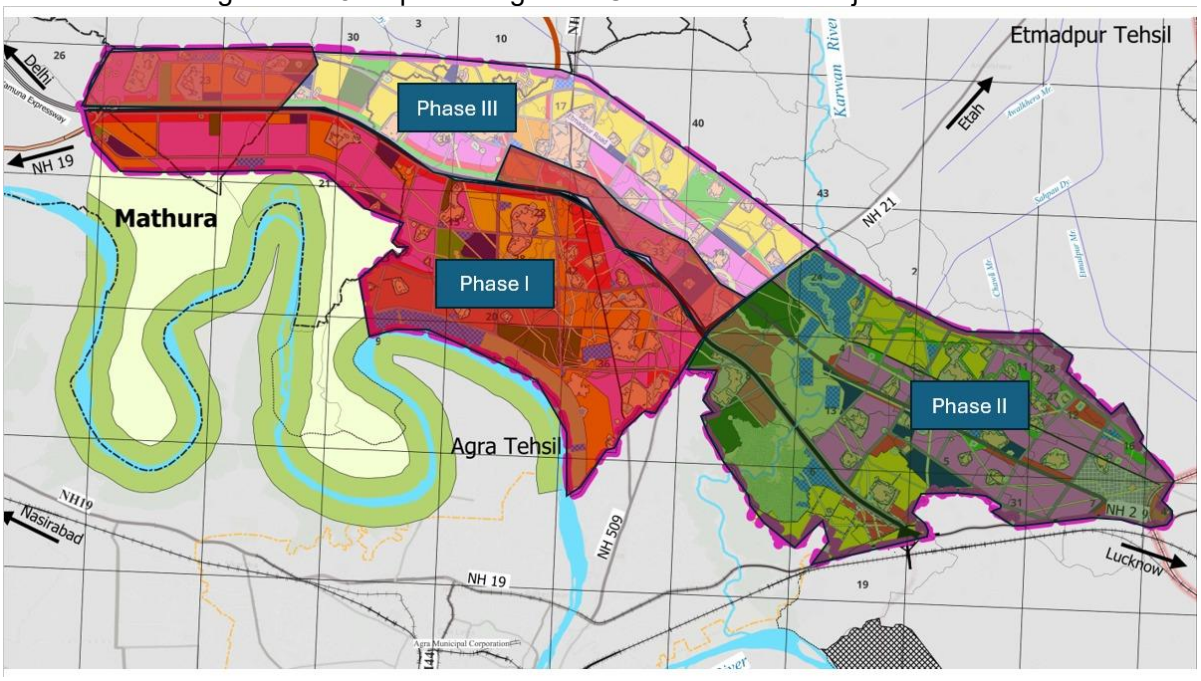
I. Lower Ganga Canal
II. Yamuna River
III. Rainwater

All 3 zones have the above mentioned water source to fulfil the water demand.

11.3.1.2 Zone Classification for Water Supply

The proposed water supply system the entire project area shall be majorly divided into 3 zones for the purpose of classification for identification of the required number of water treatment plant and supply network.

Figure 11-18 Map showing Zone Classification of Project Area



Source: Consultant Analysis

Table 11-2 Percentage of water supply for the various water land uses

S.No	Category	Percentage of water demand
1	Residential/ Group Housing	60.07
2	Industrial Staff	2.80
3	Commercial/ Mixed Use	2.00
4	Amenities & Utilities	1.00
5	Floating Population	0.67
6	Industries Other demand	4.08
7	Hotel	3.01
8	Hospital	3.21
9	Educational / Institutional	3.00
10	Green Belt	3.27
11	Fire Fighting requirement (Intermittent)	1.89

Source: Consultant Analysis

Additional 15 % water losses in the transmission and distribution are considered in the water supply.

11.3.1.3 ESTIMATED WATER DEMAND

The water demand of the project area is calculated for each zone classified based on the population projected for the zone as per the following table:

Table 11-3 Category Based Water Demand Calculation Estimation

S.No	Category	Total Population	Total Area in Hectare	Population per Hectare	Area in phase 1	Area in phase 2	Area in phase 3	Population in phase 1	Population in phase 2	Population in phase 3	Unit Water Demand	Unit	Water Demand in phase 1 (MLD)	Water Demand in phase 2 (MLD)	Water Demand in phase 3 (MLD)
1	Residential/ Group Housing	1650000	3527.65	468	1013.68	1104.58	1409.39	474132.00	516647.37	659220.63	135	LPCD	64.01	69.75	88.99
2	Industrial Staff	230600	3025.21	76.23	1352.14	1301.73	371.34	103068.35	99225.70	28305.94	45	LPCD	4.64	4.47	1.27
3	Commercial/ Mixed Use	165000	2300.43	71.73	1556.33	568.55	175.55	111628.70	40779.48	12591.82	45	LPCD	5.02	1.84	0.57
4	Amenities & Utilities	82500	1034.44	79.75	453.92	477.80	102.72	36201.26	38106.37	8192.37	45	LPCD	1.63	1.71	0.37
5	Floating Population	165000	14480.61	11.39	5977.45	5619.17	2884.00	47413.20	51664.74	65922.06	15	LPCD	0.71	0.77	0.99
6	Industries other use		3025.21		1352.14	1301.73	371.34				5000	L/ha/Day	6.76	6.51	1.86
7	Hotel	62000	14480.61	4.28	5977.45	5619.17	2884.00	25592.96	24058.96	12348.09	180	LPCD	4.61	4.33	2.22
8	Hospital	35000	14480.61	2.42	5977.45	5619.17	2884.00	14447.64	13581.67	6970.69	340	LPCD	4.91	4.62	2.37
9	Educational / Institutional	247500	14480.61	17.09	5977.45	5619.17	2884.00	102165.43	96041.81	49292.76	45	LPCD	4.60	4.32	2.22
10	Green Belt		2019.17		579.73	1081.81	357.63				6000	L/ha/Day	3.48	6.49	2.15
11	Fire Fighting requirement (Intermittent)	1650000						474132.00	516647.37	659220.63	$Q_{KLD}=100*(P_{1000})^{1/2}$		2.18	2.27	2.57
												Net Water Demand	**102.54**	**107.08**	**105.58**
												Total Water Requirement including 15% water loss	**120.64**	**125.97**	**124.21**
												WTP Capacity MLD	**125.00**	**125.00**	**125.00**

Source: Consultant Analysis

As the table highlights, considering the Net water demand and the water requirement including 15% of the water loss, the total estimated demand as per the projected population for the project area **is 375 MLD per day.**

Proposed Village population of 2.87 lakh for year 2041 is also considered in 16.5 lakh total city population for water demand calculations.

Water Demand in the zone areas are as follows **Phase 1 - 125 MLD, Phase -2 - 125 MLD, Phase 3 – 125 MLD.**

11.3.1.4 PROPOSED WATER SUPPLY INFRASTRUCTURE

Water will be sourced from **groundwater, Yamuna, and the Lower Ganga Canal**, along with **rainwater harvesting** through two proposed reservoirs designed to capture natural drain and rainwater within the project area. The reservoirs, located in the **buffer zones of Yamuna (11,750 MLD, serving Phase 1)** and **Karwan River (22,500 MLD, serving Phase 2 & 3)**, will store and channel water to **treatment plants** established at feasible zonal locations. These plants will treat water to **drinking water standards** based on classified zones and projected demand.

Table 11-4 Location of WTP and capacity

1	WTP 1	Near Yamuna	1	125 MLD
2	WTP 2	Near Karwan River	2 & 3	250 MLD (125 MLD Ph-2 + 125 MLD Ph-3)

Source: Consultant Analysis

To phasing, in the phase 2 & 3 WTP is proposed in the Phase 2 plan that can be planned **at 50% of their proposed capacity** and can be expanded in future as per the requirement. From treatment plant water is transferred to the overhead tank by pumping system. The location of the OHT is shown in the map below.

The location of the OHT tanks have been proposed based on the sectors and the upcoming population. Each OHT is planned in a way to serve the population residing within 2km radius from the tank. The capacity of each OHT shall be designed as 33% of the overall daily water requirement of the catchment area. Underground reservoir shall be provided in the WTP area with capacity of 66% of daily water requirement. Ultimately, from overhead tanks the water is distributed to the household/plot connections and the requirement through gravity.

Table 11-5 Phase wise water demand

Water Demand in phase 1 (MLD)	Water Demand in phase 2 (MLD)	Water Demand in phase 3 (MLD)	Total Water Demand (MLD)	Total (cubic M per day)
125	125	125	375	375000

Source: Consultant Analysis

During rainy days in August to October month Yamuna River have discharge 17800 cusecs of rainwater which is approx. 43525 MLD of rainwater as per discharge data of Gokul barrage in 2022, this rainwater to be stored in the reservoirs proposed near to Yamuna River and Karvan river and to be used during the period of other than rainy days.

Table 11-6 Proposed Reservoir Storage

Reservoir 1 Area	940000	m2
Reservoir 2 & 3 Area	1800000	m2
Total Storage Area	2740000	m2
Depth of Reservoier	12.5	m

Storage of reservoir 1	11750	MLD
Storage of reservoir 2 & 3	22500	MLD
Total Storage of reservoirs	34250	MLD
Evaporation and losses @10%	3425	MLD
Effective Storage	30825	MLD
Total days	365	Days
Supply by rain (Days)	90	Days
Days remain	275	Days

Source: Consultant Analysis

:

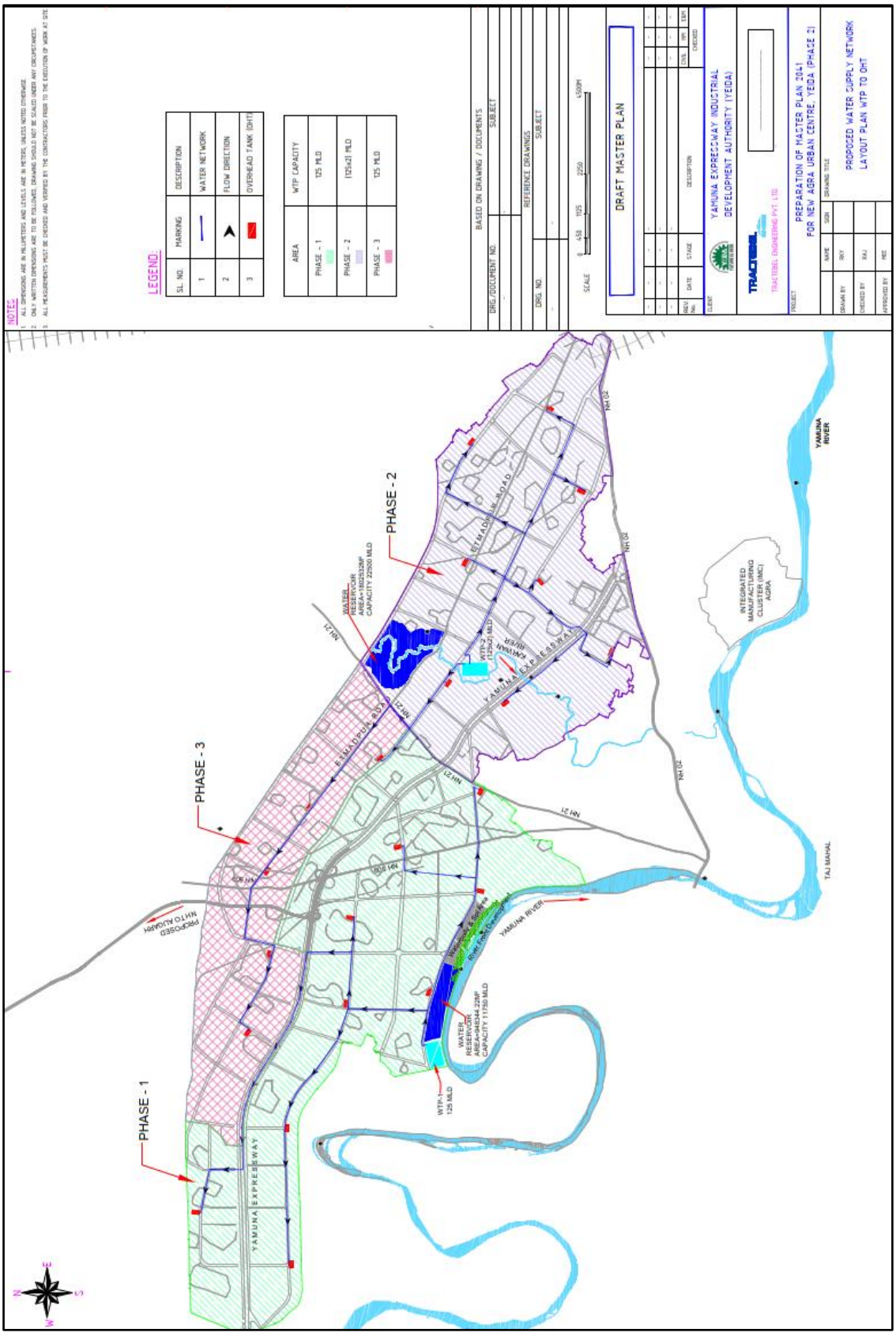
Table 11-7 Reservoir Analysis

Phases	Demand (MLD)	Demand (Other than Rainy days) per year in MLD	Demand fulfilled by reservoir per Day		Demand need to be fulfilled from other source per Day	
			Percentage	MLD	Percentage	MLD
Phase-1	125	34375	89.67%	112.09	10.33%	12.91
Phase-2	250	68750	44.84%	112.09	55.16%	137.91
Phase-3	375	103125	29.89%	112.09	70.11%	262.91

Source: Consultant Analysis

Rainwater storage reservoirs can supply the rainwater for the domestic use to the WTPs approx. 90% in the phase 1 daily water demand throughout the year and approx. 30 % in the ultimate year. Other water demand shall be taken from the Yamuna River and Lower Ganga Canal.

Figure 11-19 Map showing Location of Proposed WTP, Water supply network, Reservoir OHTs



Source: Consultant Analysis

11.3.2 Sewerage

11.3.2.1 Sewage Network

In the project area, no sewage collection system currently exists. As per the proposed plan, wastewater from domestic, industrial, commercial, residential, and amenity sectors will be collected through a common sewage network. Industrial sewage generated by workers will also be included. The system will consist of pipelines and manholes designed for gravitational flow, connected to multiple treatment facilities located at feasible points for proper treatment of sewage and industrial effluents.

Villages coming inside the Agra Urban centre development areas are also considered for the sewer network and STP capacity calculation.

Total 7 STPs are provided in the 3 Phases.

11.3.2.2 ESTIMATED SEWAGE GENERATION

Sewer generated from various sectors within the zones shall be collected though pipes and manhole through **gravity network** and finally connected to the sewage treatment plants.

Sewage of Villages coming inside the development areas of Agra Urban centre will be connected to the main sewer network and finally connected to the STP.

Considering the Wastewater generated and from 10% infiltration, the total estimated sewage generated as per the projected population for the project area Phase 1 **is 110 MLD per day. STP 1 -32 MLD, STP 2 – 46 MLD, STP 3 - 32 MLD**.

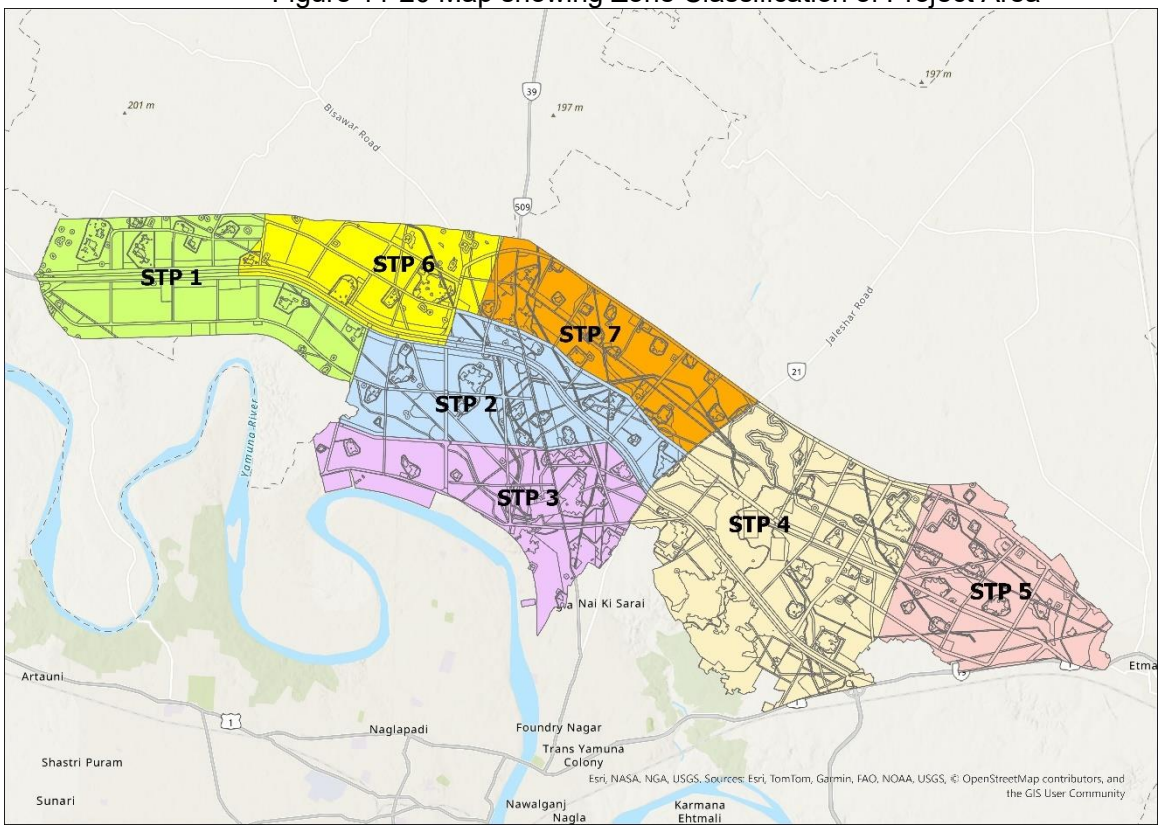
Considering the Wastewater generated and from 10% infiltration, the total estimated sewage generated as per the projected population for the project area Phase 2 **is 115 MLD per day. STP 4 -87 MLD, STP 5 – 28 MLD**.

Considering the Wastewater generated and from 10% infiltration, the total estimated sewage generated as per the projected population for the project area Phase 3 **is 110 MLD per day. STP 6 -55 MLD, STP 7 – 55 MLD**.

11.3.2.3 Zone Classification for Sewage Treatment

For the proposed Sewage treatment system, the entire project area shall be majorly divided into 7 zones for the purpose of classification for identification of the required number of sewage treatment plant and gravity network.

Figure 11-20 Map showing Zone Classification of Project Area



Source: Consultant Analysis

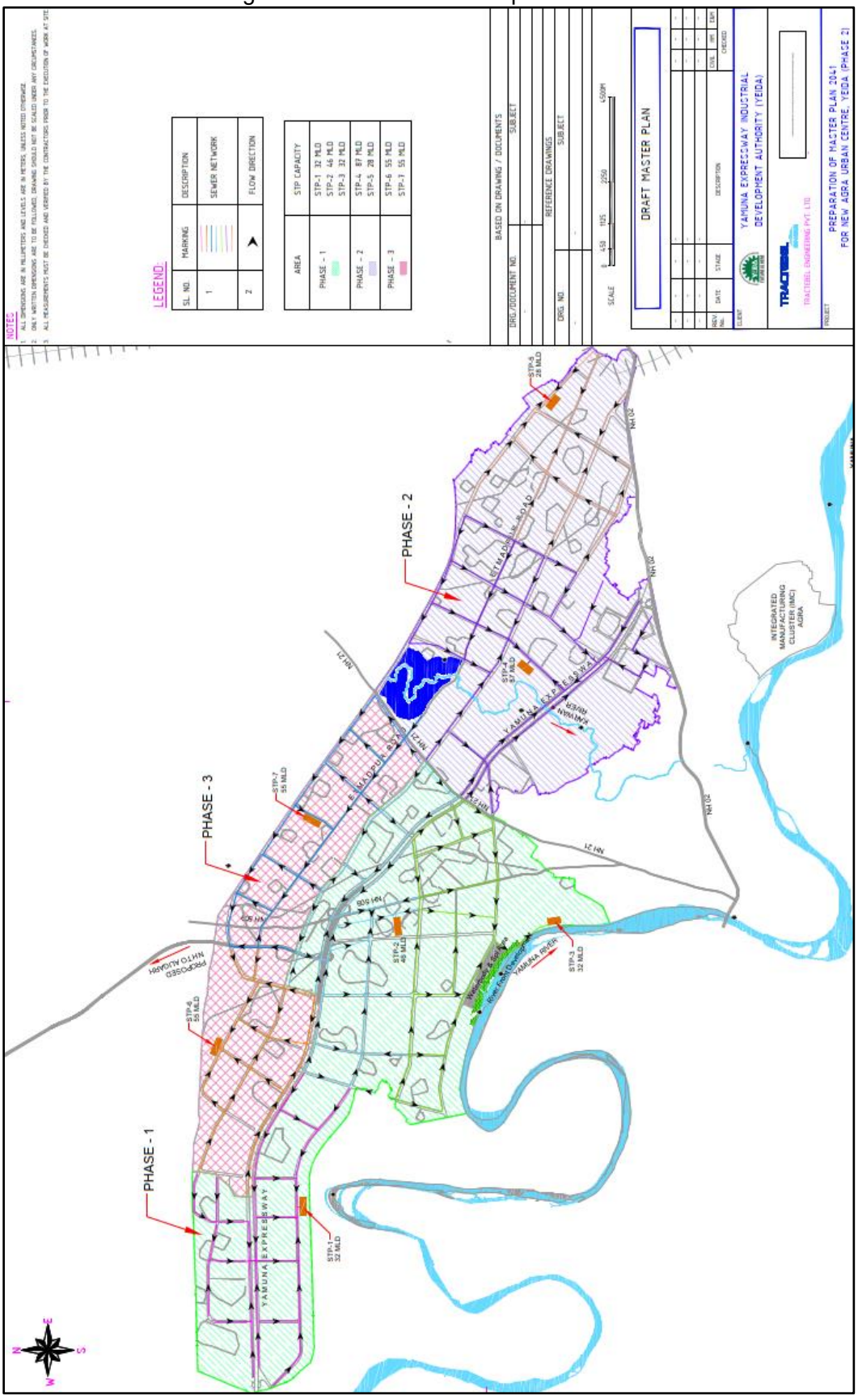
These zones shall further be used as a critical factor for determining the collection network and flow of the sewage.

11.4.1.1 PROPOSED SEWERAGE INFRASTRUCTURE

For the Sewage waste treatment of sewage generated, **07 STPs** have been planned within the four classified zones based on the feasibility.

The location of these STPs is shown in the map below.

Figure 11-21 Location of Proposed STPs



Source: Consultant Analysis

The Sewage waste shall be treated in the proposed STPs as located in the map within different zones and water shall be reused for the irrigation, landscape and industrial purposes.

Table 11-8 Capacities of Proposed STP

1	STP 1	Phase 1	Total 110 MLD STP 1 - 32 MLD STP 2 – 46 MLD STP 3 – 32 MLD
2	STP 2		
3	STP 3		
4	STP 4	Phase 2	Total 115 MLD STP 4 - 87 MLD STP 5 – 28 MLD
5	STP 5		
6	STP 6	Phase 3	Total 110 MLD STP 6 - 55 MLD STP 7 – 55 MLD
7	STP 7		

Source: Consultant Analysis

11.4.1.2 Wastewater Recycle and Reuse

Treated water from sewage after treatment shall meet the CPCB norms.

Treated water from sewage treatment plant can be reused for purposes like irrigation, landscape, road washing and firefighting.

Recycle network is provided to the industrial area. Treated water from STPs is proposed to be distributed to the industrial area with the help of Pumping system.

Recycle and Reuse

There are a wide range of potential non-potable reuses of recycled wastewater across various sectors such as:

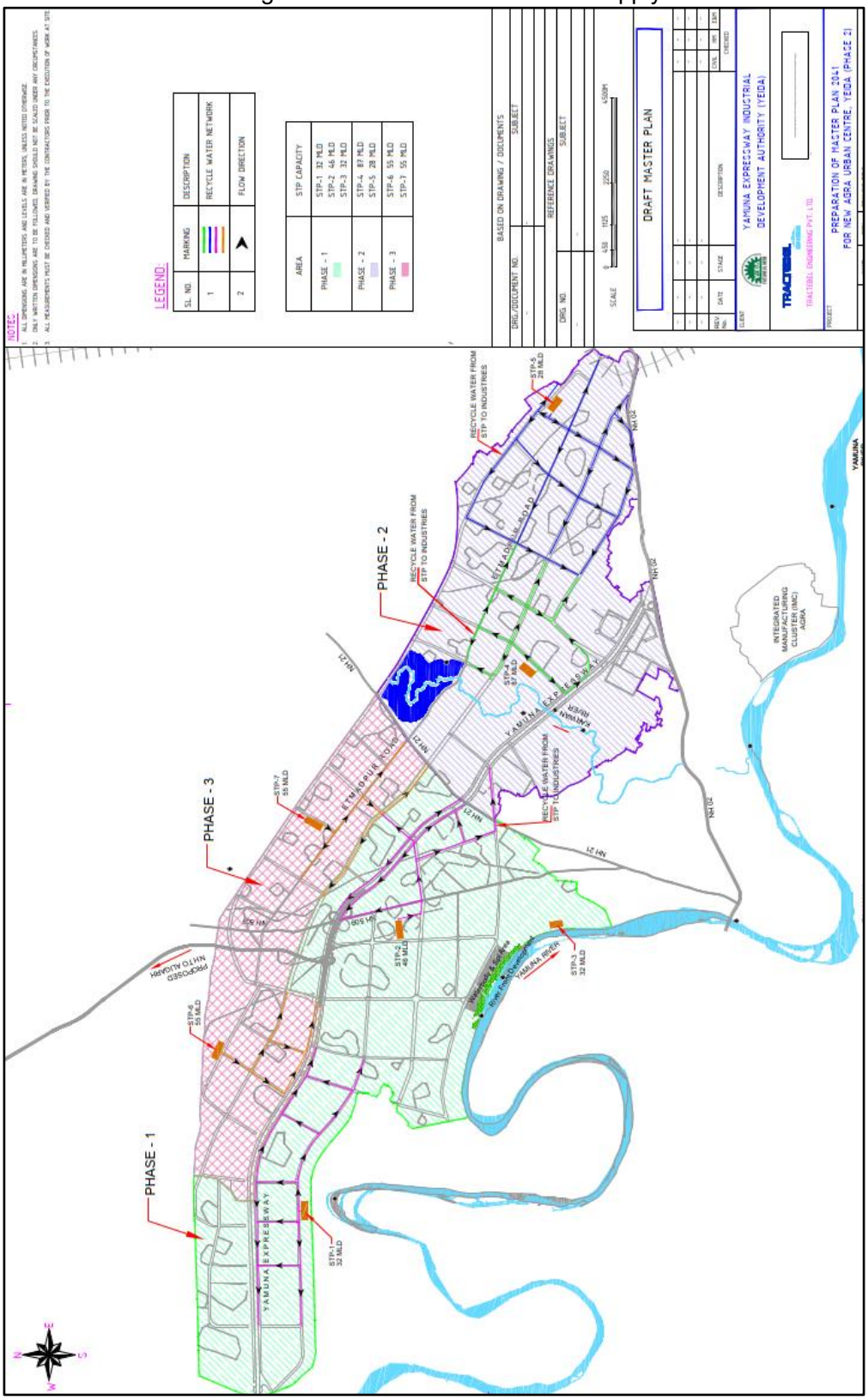
- Industry and commercial (including industrial estates, power generation companies and production companies)
- Municipal uses (e.g. Landscaping, parks, public toilets and firefighting) and Agriculture (including forestry and horticulture)
- Environment, including discharge into surface water bodies, maintenance of wetlands and environmental flows
- Aquifer recharge
- On-site use within STPs for landscaping and cleaning of desludging vehicles.

Recycle water Network from STP treated water is shown in the below image for the industries.

Recycle water demand for green belt, firefighting purpose and Industrial water demand other than domestic is approx. 35 MLD, which is approximately 10% of the total water demand of all phases.

100 % of Recycle water can be supplied to the industries water demand other than domestic, green areas and Firefighting purpose.

Figure 11-22 STP Treated water supply Network



Source, Consultant Analysis

11.3.3 Storm Water Management

The natural slope of storm water drain in the Agra Urban Centre area is towards the Yamuna River and Karwan River. All the Storm water finally going into the Yamuna River. Rainwater reservoirs are considered in the development area for the rainwater catchment and further use of rainwater for the domestic purpose after treatment. Two reservoirs located in the planned buffer of the Yamuna River and the Karwan River. The reservoir located in the Yamuna River buffer zone is of 11750MLD capacity and the second reservoir located in the buffer zone of the Karwan River is of 22500 MLD capacity.

Currently, the villages are reliant on natural drainage, with absence of a well-laid drainage system which casues water logging issues. **Villages are also proposed to be integrated with the proposed storm water network and collection of rainwater system in Agra Urban Centre area, in order to avoid water logging and flooding issues.** All natural drains have been retained with proper buffers in the masterplan.

Channel Drains are considered for rainwater catchment along with the road network. 2 Nos of drain are proposed along with the road network width of 45 and 60 m in the footpath area of road on both sides. 3 Nos of drains are proposed along with the road network width of 45 and 60 m, 1 in the median and 2 in the footpath area of road on both sides. Rainwater harvesting is also considered for the recharge of groundwater as well as to avoid the flooding on the roads. Rainwater harvesting pits are considered in the drain channel along with road network at every 1 km of road length.

Table 11-9 Agra Rainfall Data

Year	April	May	June	July	August	September	Total (Kharif)	October	November	December	January	February	March	Total (Rabi)	Annual Total
1993-94	-	-	78	156	174	220	628	-	-	-	23	15	-	38	666
1994-95	10	-	-	385	173	-	568	-	-	-	35	-	-	35	603
1995-96	10	-	10	95.5	352	230	697.5	-	-	-	-	25	-	25	722.5
1996-97	-	5	371.6	50	204.8	185	816.4	-	-	-	-	-	-	-	816.4
1997-98	-	7	16	156.5	136.7	101	417.2	36	24	103	-	-	15	178	595.2
1998-99	2	-	52	250.5	148.5	101	554	63	14	-	-	-	17	94	648
1999-00	-	-	93	108	231	180	612	39	-	-	5	-	2	46	658
2000-01	2	12	74	126	68	27	309	-	-	-	2	-	-	2	311
2001-02	27	32	47	146	62	3	317	73	-	-	16	32	-	121	438
2002-03	-	45	22	19	143	71	300	12	-	7	6	37	-	62	362

2003-04	-	25	40	216	69	210	560	-	-	17	18	-	-	35	595
2004-05	7	24	37	61	291	39	459	65	-	-	-	-	19	84	543
2005-06	-	22	8	382	66	69	547	-	-	-	-	-	-	-	547
2006-07	-	-	17	173	67	30	287	2	-	2	-	59	53	116	403
2007-08	-	-	61	37	106	40	244	-	-	-	-	-	-	-	244
2008-09	7	32	191	208	210	71	719	-	-	2	2	-	-	4	723
2009-10	5	13	7	101	100	109	335	90	18	-	-	9	1	118	453
2010-11	-	-	18	156	145	231	550	-	39	-	2	20	-	61	611
2011-12	1	16	178	139	100	69	503	-	-	-	-	-	-	-	503
2012-13	11	-	-	159	294	71	535	1	-	-	6	31	7	45	580
2013-14	-	1	51	123	302	55	532	98	-	5	12	51	32	198	730
2014-15	2	5	-	57	160	56	280	4	-	6	32	-	62	104	384
2015-16	40	15	35	51	62	38	241	14	-	7	33	-	3	57	298
2016-17	-	18	9	512	200	35	774	2	-	-	-	-	23	25	799
2017-18	5	31	43	101	78	50	308	-	-	1	14	-	-	15	323
2018-19	65	23	49	423	243	138	941	1	-	-	2	-	8	11	952
2019-20	27	1	31	247	191	124	621	12	7	23	18	17	50	127	748
2020-21	5	61	25	105	207	52	455	-	12	-	31	-	-	43	498
2021-22	2	87	7	187	61	76	420	98	-	-	7	3	-	108	528
2022-23	0	7	26	196	96	179	504	110	2	-	40	0	2	154	658
2023-24	2	17	51	89	180	64	403	4	0	22	0	6	2	34	437

Source: Disaster Management Office Agra

Agra Annual Rainfall data of last 30 years ranging from minimum 244 mm to maximum 985 mm. Storm water shall be collected and used for the ground water recharge and reuse the water for the drinking purpose.

Storm water runoff shall be calculated as per the formula and runoff coefficient shall be considered as per the type of area catchment as per NBC 2016 vol 2.

The runoff reaching the sewer may be given by the expression:

$$Q = 10\ C.i.A$$

where

Q = runoff, m^3/h;

C = coefficient of runoff;

i = intensity of rainfall, mm/h; and

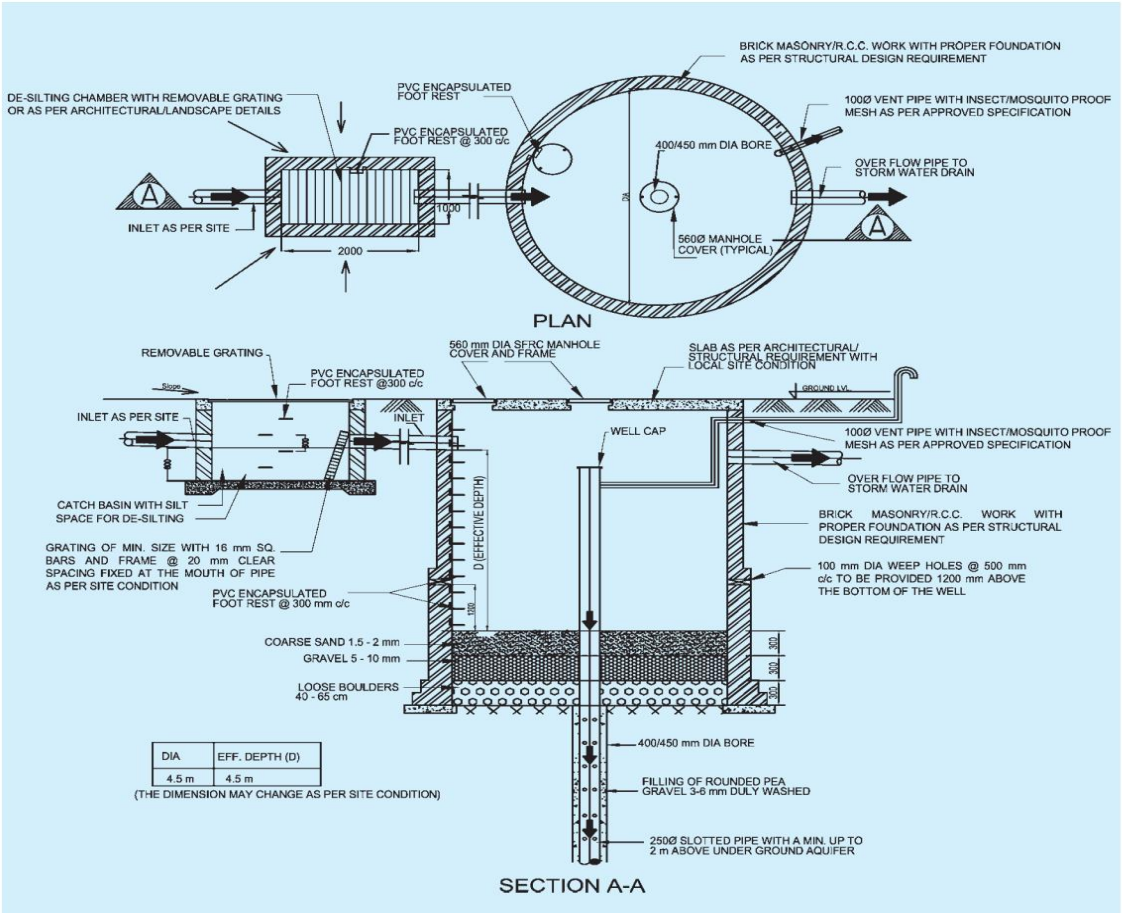
A = area of the drainage district, hectares.

Coefficient of runoff for various surfaces may be taken as:

Type of Surface	*Coefficient of Runoff*
Concrete roof area	0.9
Paved podium areas and asphalted roads	0.8
Unpaved ground	0.3
Lawns and parks	0.15

Storm water drain channel, pipe and manhole network material shall be RCC or long-lasting material which does not require maintenance for 30-40 years. Only cleaning of the storm water system is required at regular intervals of once in 6 months.

Figure 11-23 Typical rainwater harvesting pit



Source: National Building Code of India, 2016

11.3.4 Solid Waste Management

As per the definition provided by the Municipal Solid Waste (Management and Handling) Rules, 2016 of Government of India, municipal solid waste (MSW) includes commercial and residential wastes generated in municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes. This section deals the strategy for

1. Municipal solid waste management
2. Plastic Waste Management
3. Construction and Debris Waste
4. Bio-Medical Waste management
5. E-Waste Management
6. Hazardous Waste Management

Table 11-10 Total Waste Composition in Tons per day

Waste Generation Tons/ Day											
Category	Population		Operation								
			Biodegradable			Non-Biodegradable					
		Total MSW	Composting (Food ...	Wood	Paper	Plastic	Metal	Inert for SLF	BMW	E-Waste	Battery Waste
Ratio in Waste Composition	Population	100 %	50%	5%	10%	10%	20%	5%	500 gm /day	per capita **2.4 kg @capita** (sdgindex, 2021)	2.4 kg per year
Residential	1,650,000	660	330.00	33.00	66.00	66.00	132.00	33.00	217.80	10.85	10.85
Workforce	822,600	206	92.54	10.28	20.57	20.57	41.13	20.57	0.0	5.41	5.41
Floating Population	165,000	41	18.56	2.06	4.13	4.13	8.25	4.13	0.0	1.08	1.08
Total		**907**	**441.11**	**45.35**	**90.69**	**90.69**	**181.38**	**57.69**	**217.80**	**17.34**	**17.34**

Source: Consultant's Estimation

Referring Centre for Science and Environment document on 'E- Waste Management in India" India's e-waste generation is significant, with an estimated 2.4 kg of e-waste per capita. This figure is below the global average of 7.3 kg per capita. The country's e-waste management challenges include informal recycling practices, lack of regulations, and the importation of e-waste from developed countries. By considering the statement the estimated E-Waste generation will be 17.34 tons per day.

The battery waste generated annually is approximately 2.4 million tonnes in India, which is part of the total ewaste generated. This waste includes various types of batteries, and there is a gr owing need for effective recycling and management strategies to minimize environmental impa ct. Here three phases development plan has estimated battery waste and e waste separately as under:

10.1.1.1. C&D WASTE DURING CONSTRUCTION PHASE

As per the Construction and Demolition (C&D) Waste Rule 2016, 'any waste comprising building materials, debris and rubble resulting from construction, remodelling, repair and demolition of any civil structure' is classified as C&D waste. Following Centre for Science and Environment (CSE) report, TIFAC (Knowledge Partner of CSE) developed the following rules of thumb to estimate C&D waste generation:

- Range 40–60 kg per sq. m of new construction,
- Range 40–50 kg per sq. m of building repair,
- Range 300–500 kg per sq. m for demolition of buildings.

Basis of above norms 300 tons shall be generating in Construction period. But 90 percentage waste can be utilised for raw material in construction. Therefore, actual C&D waste will be 30 Tons in construction period. SOLID WASTE MANAGEMENT STRATEGY

SWM Manual by CPHEEO, 2014 and MoEF Rule, 2016 emphasised by 5R principle-Reduce, Recycle and Reuse in SWM. Integrated Solid Waste Management Draft Rule 2025 the most important concern currently is 5R principle – **Refuse, reduce, reuse, repurpose, and recycle for** land requirement for disposal by maximizes appropriate treatment of different waste streams.

Approach: ***Create project area self-sustainable, resilient, reduced to zero-waste through inclusive participatory planning***

Door to door collection has been framed as per ISWM 2025 Draft Rule with segregated waste storage system at generating point. Every unit (Residential, Commercial, Institutional and Green Belt population generating waste should be stored in segregated waste bin and collection has been framed from door to door.

Closed metal container of capacity 3.0 and 4.5 cubic MT will be used to collect the waste from primary source. Garbage transport vehicle is equipped with Global Positioning System (GPS) and every incidence of the compactor halt to collect garbage is monitored and recorded. This entire system will be under ICCC system. Altogether transportation plan shall be developed in DPR stage.

The selected treatment and disposal technologies are:

- Recycle/Reuse/Material Recovery
  - Plastic Compactor- Plastic cube for fuel to industry
  - Mini Crusher- raw material for civil mainly road construction
- Energy recovery
  - Refuse Derived Fuel (RDF) to useful for industry
- Composting- Windrow at one place

Inert waste will be disposed of at City Level Sanitary Landfill site at Agra & Noida.

The design aspect of Waste Management Centre has been considered in the above calculated area in table Area for Processing Centre. IWM centre shall be placed:

1. MRF at two places
2. W2E and Crusher and Sanitary Land fill
3. Street sweeping and horticulture waste for Mechanical Composting at sector level

Details requirement for land will be calculated in DPR stage. But bulk area requirement would be 25,000 sq meters Here two zones are proposed.

1. Industrial zone (Phase 1)
    - MRF
    - W2E
    - SLF
2. Residential and Institutional Zone (Phase 2)
    - Composting
    - MRF

Although these centres will be constructed in Two phases:

Phase 1: MRF cum Waste Management Centre

Phase 2: MRF

These two phases of development will cater for the entire area waste collection, transportation and processes.

Under each phase residential and commercial as well as institutional area shall be covered by tipper collection irrespective town or village level generation. Waste will be transported to well defined waste processing centers in two locations to make city clean and self-reliant.

Waste Generation in three different phases have been developed as under:

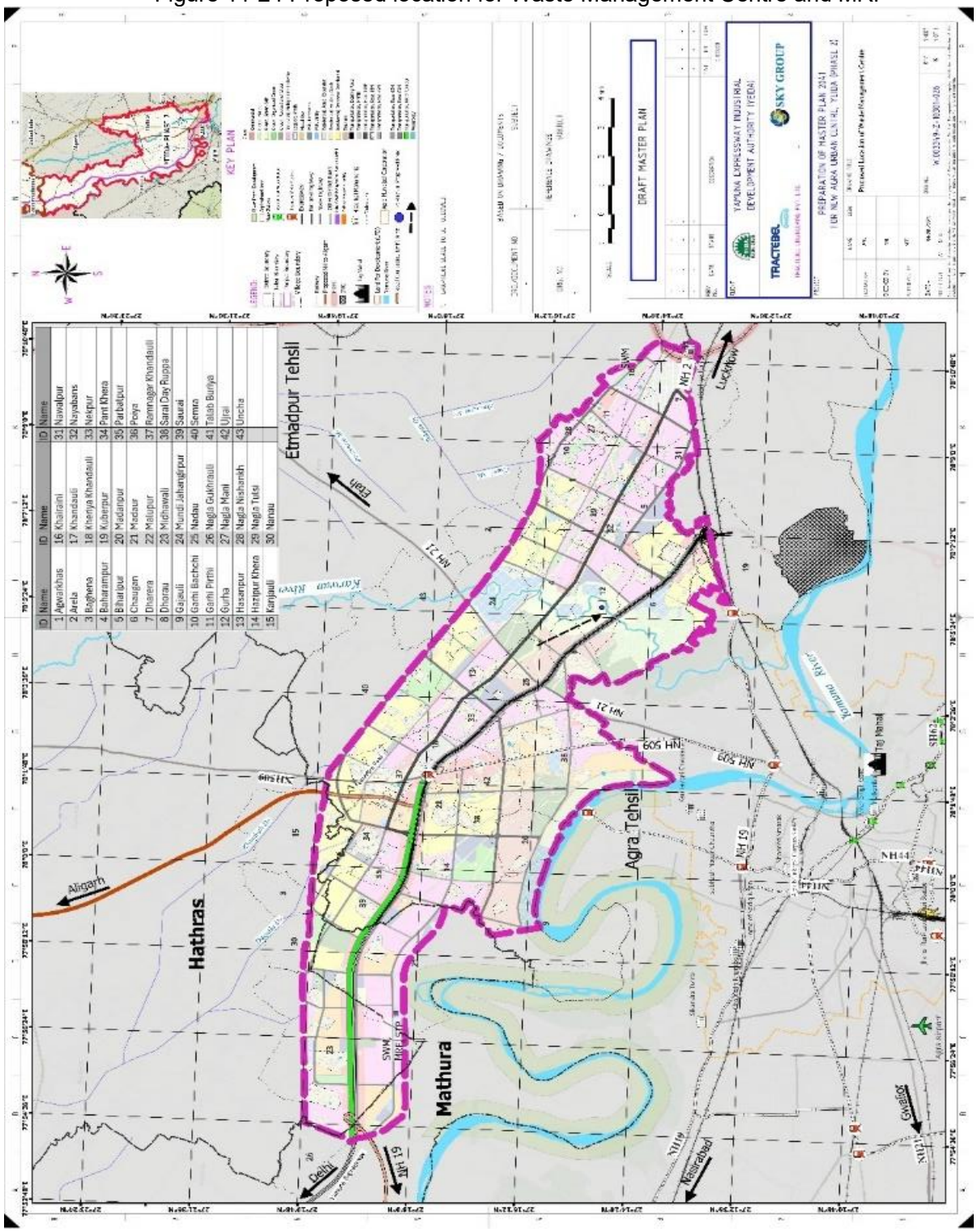
Table 11-11 Waste Generation in 3 Phases

Waste Generation Tons/ Day in Phase 1											
Category	**Population**		Operation								
			Biodegradable			**Non-Biodegradable**					
		Total MSW	**Composting (Food Waste)**	**Wood**	**Paper**	**Plastic**	**Metal**	**Inert for SLF**	**BMW**	**E-Waste**	**Battery Waste**
Ratio in waste Composition	Population	100 %	50%	5%	10%	10%	20%	5%	500 gm per day 33 %	India E-Waste generation per capita is 2.4 kg (SDG index, 2021)	2.4 kg per year
Residential	676,247	270	135.25	13.52	27.05	27.05	54.10	13.52	89.26	4.45	4.45
Workforce	530,474	133	59.68	6.63	13.26	13.26	26.52	13.26	0.0	3.49	3.49
Floating Population	67,625	17	7.61	0.85	1.69	1.69	3.38	1.69	0.0	0.44	0.44
Total	**1,274,346**	**420**	**202.54**	**21.00**	**42.00**	**42.00**	**84.00**	**28.48**	**89.26**	**8.38**	**8.38**
Waste Generation Tons/ Day in Phase 2											
Category	**Population**		Operation								
			Biodegradable			**Non-Biodegradable**					

		Total MSW	Composting (Food Waste)	Wood	Paper	Plastic	Metal	Inert for SLF	BMW	E-Waste	Battery Waste
Ratio in waste Composition	Population	100 %	50%	5%	10%	10%	20%	5%	500 gm per day 33 %	India E-Waste generation per capita is 2.4 kg (SDG index, 2021)	2.4 kg per year
Residential	713,396	285	142.68	14.27	28.54	28.54	57.07	14.27	94.17	4.69	4.69
Workforce	3,292	1	0.37	0.04	0.08	0.08	0.16	0.08	0.0	0.02	0.02
Floating Population	435	0	0.05	0.01	0.01	0.01	0.02	0.01	0.0	0.00	0.00
Total	**717,123**	**286**	**143.10**	**14.31**	**28.63**	**28.63**	**57.26**	**14.36**	**94.17**	**4.72**	**4.72**
Waste Generation Tons/ Day in Phase 3											
Category	**Population**		Operation								
			Biodegradable			**Non-Biodegradable**					
		Total MSW	**Composting (Food Waste)**	**Wood**	**Paper**	**Plastic**	**Metal**	**Inert for SLF**	**BMW**	**E-Waste**	**Battery Waste**
Ratio in waste Composition	Population	100 %	50%	5%	10%	10%	20%	5%	500 gm per day 33 %	India E-Waste generation per capita is 2.4 kg (SDG index, 2021)	2.4 kg per year
Residential	255,447	102	51.09	5.11	10.22	10.22	20.44	5.11	33.72	1.68	1.68
Workforce	1,822	0	0.21	0.02	0.05	0.05	0.09	0.05	0.0	0.01	0.01
Floating Population	163	0	0.02	0.00	0.00	0.00	0.01	0.00	0.0	0.00	0.00
Total	**257,432**	**103**	**51.31**	**5.13**	**10.27**	**10.27**	**20.54**	**5.16**	**33.72**	**1.69**	**1.69**

Source: Consultant's Estimation
After analysing above 3 phases development scenario estimated battery waste and E waste have been considered 50 percent each type in generation. The separate unit shall be kept collecting and transport to process outside AUC area.

Figure 11-24 Proposed location for Waste Management Centre and MRF



Source: Consultant Analysis

11.3.5 Power supply

11.3.5.1 POWER DEMAND FORECASTING

Load forecasting is the first step in power system planning, providing inputs for generation, transmission, distribution, and tariff setting. The study aims to compare projected peak demand and energy consumption until horizon year, aligned with population growth in Agra Urban Centre.

11.3.5.2 ESTIMATION OF POWER DEMAND

Power demand within the project area has been estimated based on load considering the suitable land use factor and diversity factor. The estimated power demand within Agra Urban Centre is presented in Table below.

Table 11-12 Power demand within Agra Urban Centre

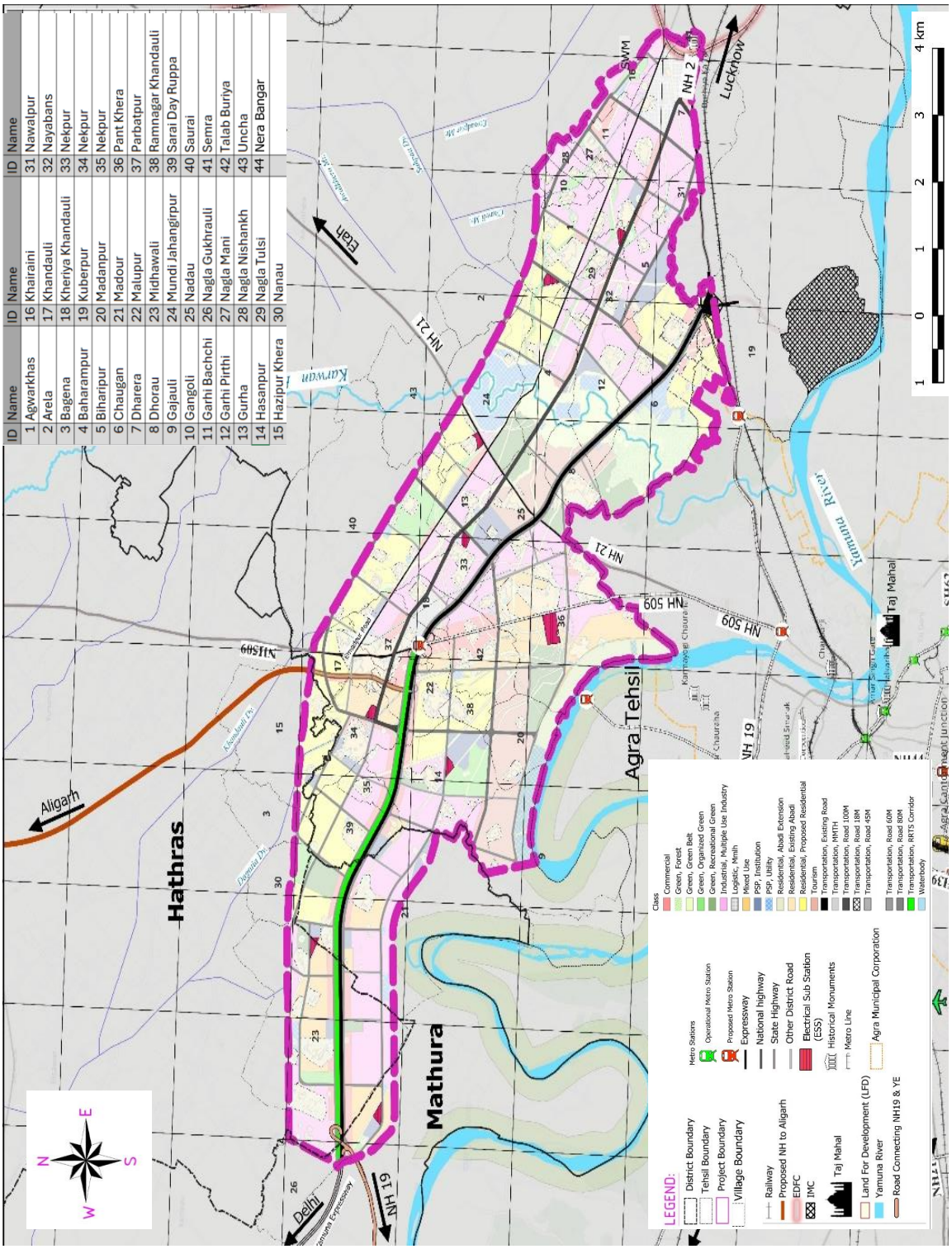
TABLE A: ULTIMATE POWER DEMAND FOR for New Agra Urban Centre,YEIDA

Land Use	BUA(Sq.m.)	Occupancy factor	Lighting load (watt/Sqm) As per ECBC-2017			Power, Equipment & Workstation load (watt/Sqm) As per MVVNL guidelines			HVAC laod (watt/Sqm) with Power demand of 0.8 kW/ ton as per power engineers			Lifts load (watt/Sqm)			Common area/Parking load (watt/Sqm) As per ECBC-2017			Total Demand load (a+b+c+d+e+f) (watt/Sqm)	CL (MW)	D.F	Ultimate Demand Load (MW)
			CL	LF	DL (a)	CL	LF	DL (b)	CL	LF	DL (d)	CL	LF	DL(e)	CL	LF	DL(f)				
Commercial	14916500	100%	9.5	1.1	9	97.44	5	19.5	43.1	1.43	30.1	3.00	10	0.3	3.0	5	0.6	59.2	882.52	0.75	661.9
Residential	43465300	100%	7.5	1.1	7	49.40	2.5	19.8	NA	NA	NA	3.00	10	0.3	3.0	5	0.6	27.5	1194.32	0.50	597
Mendatory areas (Green / Roads / open area / circulation)	44998500	100%	3.0	1.1	2.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7	122.72	0.50	61
Public / Semi Public /Institutional	10383400	100%	9.5	1.1	9	97.44	3.3	29.3	43.1	2	21.5	3.00	10	0.3	3.0	5	0.6	60.3	626.40	0.75	470
Industrial	30262100	100%	9.5	1.1	9	97.44	5.0	19.5	43.1	1.43	30.1	3.00	10	0.3	3.0	5	0.6	59.2	1790.43	0.75	1343
Waterbody	780200																				
TOTAL	**144806000**																		**4616.39**		**3298**
Ultimate Power Demand Load (MW) at 11kV level																					**3298**
Ultimate Power Demand Load (MW) after considering 0.7 overall diversity factor 220 or 132kV Level																					**2309**
Ultimate Power Demand Load (MVA) @ 0.95 power factor																					**2430**

Source: Consultant Analysis

About 5% of the above power demand shall be met by renewable energy through the solar power plant at Karwan River buffer. Additionally, the decentralized roof top solar systems shall further contribute towards meeting the energy needs sustainably. Further, strategies such as SCADA, and Decentralized Hybrid Solar Plants with LED Smart Street lighting System shall aid in managing the peak demand.

Figure 11-25 Proposed Electrical Substations in AUC



Source: Consultant

11.3.5.3 POWER INFRASTRUCTURE AND RENEWABLE ENERGY PLANNING

Agra Urban Centre's power plan adopts an HVDS system with 11 kV network extension, reduced low-voltage lines, and underground cabling on major roads. It includes new, augmented, and bifurcated 11 kV feeders to improve quality and reduce losses. Consumers will be connected through RS-485 meters enabling SCADA integration. The plan is cost-optimized, considering circuit needs, capacity, phasing, load growth, and overhead network costs.

The following critical areas also need to be attended to improve energy efficiency.

a) Introduction of energy audits and Organizing detection of pilferage squads
b) AT&C losses reduction.
c) Load management techniques and energy accounting.
d) Introduction of demand side management (DSM).
e) Reactive power management.
f) Promotion of new and renewable sources of energy Includes Roof Top Solar PV Panels.
g) Replacement of low efficiency incandescent lamp with intelligent LED.
h) Integrated Decentralized Hybrid Solar Plants with LED Smart Street lighting System.
i) Conversion of Overhead to Underground in major roads and Conversion of overhead to AB cable in narrow roads of existing Distribution Network.

11.3.5.4 STRATEGIES

- To provide uninterrupted quality power, reliable with redundancy facility at every stage in Agra urban centre.
- Smart Grid with distributed renewable energy resources with auto recloser for minimizing the outage time and interruptions.
- Replacement old distribution transformers with energy efficient Amorphous core DTRs.
- Strengthening the administrative measures to minimize the theft of power.
- Strengthening the administrative measures to prompt redressal of consumer grievances.
- Underground cabling for transmission & distribution of power to avoid bare powerline proximity accidents.
- Smart metering of real time energy consumption & computation of online power losses, to make instant corrective measures by means of demand side management, to avoid under frequency, to maintain unity power factor & to avoid over loading of the circuits.
- Energy efficient street lighting
- Supervisory Control and Data Acquisition (SCADA) through latest communication technologies for automation of transmission & distribution, preferably through optical fibre system.
- Renewable Energy (Solar)

Table 11-13 Proposed Strategies for Power Supply

Short term Strategies	Medium Term Strategies	Long term Strategies
	150 MW Ground mounted Solar Power plant at Karwan River	100 MW Ground mounted Solar Power plant at Karwan River buffer

Short term Strategies	Medium Term Strategies	Long term Strategies
	buffer	
Streamlining of household connections as well as legalized connections Implementation of 100% Consumer smart metering system.	Extend Smart Grid connectivity to include the new network components.	Extend Smart Grid connectivity to include the new network component
100% replacement or repair the old/defunct system		
Plan for reduction in AT&C loss		
EHV, MV and LV cable networks to be installed to meet the load growth demand.	EHV, MV and LV cable networks to be installed to meet the additional load growth demand.	EHV, MV and LV cable networks to be installed to meet the additional load growth demand.
Associated 33 kV and 11 kV RMUs and network to be implemented.	Associated 33 kV and 11 kV RMUs and network to be implemented for phase 2.	Associated 33 kV and 11 kV RMUs and network to be implemented for phase 3
100% Conversion of existing Street lighting system to intelligent LED with integrated decentralized Hybrid solar street lighting system.	-continued integration-	-continued integration-
Roof Top Solar System Implementation of residential consumers	Roof Top Solar System Implementation of additional residential consumers	Roof Top Solar System Implementation of additional residential consumers
Extension of 11kV Network and potential reduction in Low Voltage Network		
Upgradation of Transformer capacities and refurbish of existing electricity infrastructure to minimize the outages.		
Introducing SCADA system to minimise Power losses and theft	-continued integration-	-continued integration-
Proposed distribution system shall be UG cable & AB cable.		
100% Conversion of Overhead lines to UG cabling		
Awareness program for optimization of power	Complaint redressal centres to be set up to look after the issues on	Detailed Operation and Maintenance Programme

Short term Strategies	Medium Term Strategies	Long term Strategies
	power supply	

Source: Consultant

11.3.5.5 EHV AND MV DESIGN STRATEGY

The supply voltages are selected based on Uttar Pradesh state regulations. The high voltage substations (220 kV,132 kV and 33kV) will have indoor GIS switchgear. The network equipment capacities have been logically developed by systematic power demand estimate through Land use and end use methods from plot level, location of 11 kV and 33 kV Ring Main Units (RMUs) for last mile feeder connection to the plots.

11.3.5.6 PLUG & PLAY INFRASTRUCTURE

Modular and scalable infrastructure allows for flexibility in terms of application. This enables better monitoring and intensification of measures to minimize the plant's development impact. Using an underground cable network leads shall lead to 50% space savings.

11.3.5.7 SMART GRID

To reduce peak electricity demand and increase efficiency of electric energy delivery - 15% energy savings will be achieved by using smart load sharing and control system.

11.3.5.8 RENEWABLE ENERGY & EFFICIENT POWER CONSUMPTION

Solar Energy

Solar photovoltaic power offers high scalability, distributed generation, and rapid capacity addition with short lead times. Uttar Pradesh, with over 300 sunny days annually, has a solar potential of 22.83 GWp but currently utilizes only 2.5 GW. Under the Solar Policy 2022, the state targets 22 GW by 2026–27. Agra Urban Centre, located in a prime solar radiation belt, receives average solar radiation of 1920.4 kWh/m². While UP also has limited wind potential (outside Agra), both solar and wind plants require significant land (3–5 acres/MW for solar, 2–3 acres/MW for wind). Agra's solar energy varies seasonally: the brightest period (April–June) averages 6.8–7.5 kWh/m² daily, while the darkest (November–January) averages 3.9–4.6 kWh/m², making it a rich renewable resource zone.

Table 11-14 Solar plant capacity at Karwan River Buffer, AUC; Source: Consultant

Sl. No	Land	Area (ha)	Area (Sq m)	1 KWp of Solar Power shadow free space required	Consider 80% land usage	Solar plant Installation Capacity	Capacity considering PR=0.8
1	River Buffer	200	2000000	10 sq m	1600000	160	128 MW

Above Table outlines the land and capacity potential for solar power in Agra Urban Centre. The available area under river buffer near Karwan river is about 378 Ha of which about 200 Ha is proposed for installation of solar parks and it is assumed that about 80% of this area is usable, enabling ~128 MW solar capacity, with 1 kWp requiring ~10 m² of shadow-free area. Solar farms will be promoted in Green Development Areas under the Agriculture-cum-Solar Farm Scheme, with PPA-based models to incentivize landowners to establish solar projects on agricultural lands.

a) Agra urban centre has a few canals that can be utilised for harnessing solar energy as per feasibility. The canal owning agencies may leverage this potential for generation of solar energy.
a) Government buildings and institutional campuses with a roof top area above 500 sq.m to install solar PVs as per Uttar Pradesh Solar Policy 2016 and Net Metering Regulations, 2014.
b) Large scale public facilities such as railway stations, inter-state and city-level bus stations/depots, stadiums etc., may progressively meet majority of their power requirements through solar and other renewable energy.
c) New policies/incentives may be introduced by the authority such as consumers will have the freedom to set up solar projects for self-use. There will be no ceiling on the projects' capacity, and the existing ceiling of 50% of the contracted load for setting up rooftop solar projects can be removed. Consumers can install solar systems on their roofs or premises and lease them to third parties. A group of consumers can set up solar projects for self- consumption as collective ownership projects and consume the generated electricity in the ratio of ownership. which would help bring down their operating cost**.**
d) Any excess power generated (after meeting on-site requirements) may be fed into the grid,

The following strategies may be adopted to enhance the usage of solar energy in buildings and public spaces:

a) Solar-based LED lighting to be used for roads, parks and public places. These shall be implemented as part of sector or zonal level planning.
b) Installation of solar PVs shall be encouraged in all plots with roof area more than 100 sq.m and solar assisted water heating shall be promoted as per UBBL. Installation of the same to be made mandatory for all new constructions and linked to building permissions.
c) The practice of differential pricing for power supply may be adopted by UPPTCL to encourage increased solar usage during peak hours, to reduce the peak load and improve system efficiency.

Modular star rated electrical appliances and electrical fixtures to be mandated in buildings for higher energy efficiency.

Thermally comfortable and energy-efficient buildings shall be promoted according to the UBBL and Energy Conservation Building Code 2018. The following shall be considered while planning and designing projects:

a) Energy efficient design through due consideration of Climatology, wind flow, drainage, presence of water body in close vicinity.

b) Development of blue green features within plots for all new developments.

c) Existing buildings may be retrofitted to improve their thermal comfort. Retrofitting may include provision of shading, ventilation, insulation etc.

d) Building Envelope (Passive Design & Thermal Controls) such as Thermal insulation, High-performance fenestrations, Reduced air leakage, Shading devices to reduce solar heat gain and Daylighting design.

e) HVAC (Heating, Ventilation & Air Conditioning) Efficiency attained by Selection of efficient HVAC equipment, including minimum efficiency levels for chillers, air-conditioners, and variable refrigerant flow (VRF) systems, System controls such as thermostats, time clocks, and variable speed drives to reduce energy use during unoccupied periods, Duct and pipe insulation, proper sealing and balancing to reduce losses and Efficient boilers and hot water systems with prescribed minimum efficiencies.

f) Lighting & Controls: Maximum lighting power densities (LPD), Use of efficient lighting technologies, such as LED, Daylight integration and occupancy sensors, Lighting zoning and scheduling controls

g) Electrical Power Systems & Equipment Efficiency: High-efficiency transformers and motors, Sub-metering of major energy uses, Efficient pumps, fans and related drives

h) Integration of Renewable Energy: On-site solar PV or other renewable generation systems to offset grid electricity use, Solar heating systems

The electricity supply system will monitor key electrical parameters (voltage, current, frequency, harmonics), load patterns, and energy use across the grid, onsite generation (Solar PV, WTE), and the T&D network through smart meters. Demand will be tracked from source to end user, including sub-feeders (lighting, power, HVAC, processing, utilities), with continuous analysis for efficiency and conservation. A real-time smart grid with two-way communication will be integrated with the central ICT-based **Common Command Centre** for utility monitoring and e-governance of large grid-connected Solar PV parks in Agra Urban Centre.

Figure 11-26 Proposed type of solar plants in the Project Area: In river buffer (left) and along canals (right))

Source: PV Magazine of India, 2021

11.4 Social Infrastructure

11.4.1 Education

Based on the projected population and in reference to the Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines, approximately 728 hectares (Ha) of land should be allocated for school education facilities within the Agra Urban Centre. This allocation is broken down as follows:

- Pre-Primary/Nursery Schools: 52.8 Ha
- Primary Schools: 132 Ha
- Senior Secondary Schools: 396 Ha
- Integrated Schools (with hostel): 57.8 Ha
- Integrated Schools (without hostel): 64.4 Ha
- Schools for Physically Challenged: 25.7 Ha
- Schools for Mentally Challenged: 0.3 Ha

These allocations aim to cater to the diverse educational needs of the population, ensuring comprehensive educational infrastructure that supports early childhood education, primary and secondary schooling, as well as provisions for special needs students.

Table 11-15 Space demand for education facilities – schools

Education Facilities					
A. Pre-primary to Secondary Education					
Sl	**Category**	**Population Served per unit**	**Area Requirement (Ha)**	**Projected Population (Agra Urban Centre + Villages)**	**Area Requirement**
1	Pre-Primary, Nursery School	2500	0.08	1650000	52.8
2	Primary School (class I to V)	5000	0.4	1650000	132.0
3	Senior Secondary School (VI to XII)	7500	1.8	1650000	396.0
4	Integrated School without hostel facility (Class I-XII)	100000	3.5	1650000	57.8
5	Integrated School with hostel facility (Class I-XII)	100000	3.9	1650000	64.4
6	School for Physically Challenged	45000	0.7	1650000	25.7

7	School for Mentally Challenged	1000000	0.2	1650000	0.3
	TOTAL				**728.9**

Source: Consultant analysis based on URDPFI Guidelines

Additionally, 181 hectares (Ha) should be designated for higher education facilities. This area will support the development of institutions such as:

- Colleges
- University campuses
- Technical education centres
- Engineering colleges
- Medical colleges
- Other professional colleges

The strategic allocation of land for both school and higher education facilities is pivotal in addressing the growing educational demands of the urban population. Such planning ensures that educational infrastructure is not only sufficient in quantity but also well-distributed across the urban centre. This distribution will be aligned with residential zones and accessible through well-connected transport infrastructure, facilitating ease of access for all residents and contributing to the creation of a balanced, sustainable, and educated community.

Table 11-16 Space demand for education facilities – higher education

Education Facilities					
B. Higher Education					
Sl	**Category**	**Population Served per unit**	**Area Requirement (ha)**	**Projected Population (Agra Urban Centre + Villages)**	**Area Requirement**
1	College	125000	5	1650000	66.0
2	University Campus (University campus and new university campus categories are combined)		60	1650000	60.0
3	Technical Education Centre (A) – To include 1 Industrial Training Institute (ITI) and 1 Polytechnic		4	1650000	4.0

4	Technical Education Centre (B) – To include 1 ITI, 1 Technical Centre and 1 Coaching Centre	1000000	4	1650000	6.6	
5	Engineering College	100000	6	1650000	9.9	
6	Medical College	1000000	15	1650000	24.8	
7	Other Professional Colleges	1000000	6	1650000	9.9	
8	Nursing and Paramedical Institute	1000000	0.2	1650000	0.3	
	TOTAL					**181.5**

Source: Consultant analysis based on URDPFI Guidelines

10.1.2. Healthcare

An adequate number of educational and healthcare facilities is essential to cater to the projected population of the Agra Urban Centre, ensuring the achievement of social safeguards and a high quality of life for its residents.

According to the Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines, approximately 346 hectares (Ha) of land must be allocated for healthcare facilities within the Agra Urban Centre. This allocation is necessary to accommodate a range of healthcare services, which include Dispensary, Nursing Home, Polyclinic, Mulit speciality hospital, general hospital, etc.

The allocation of 346 hectares for healthcare infrastructure is crucial for ensuring that the urban population has access to essential medical services. This will contribute to improving public health standards and increasing life expectancy, while also mitigating the risk of healthcare disparities within the urban area. With proper planning and adequate land provision, healthcare facilities can be efficiently distributed across the Agra Urban Centre, making them easily accessible to all residents, particularly in proximity to densely populated areas and transport corridors.

Table 11-17 Space demand for healthcare facilities

Category	**Population served per unit**	**Area requirement**	**Projected Population (Agra Urban Centre + Villages)**	**Area Requirement**
Dispensary	15000	0.12	1650000	13.2
Nursing home, child welfare and maternity centre	100000	0.3	1650000	0.3
Polyclinic	100000	0.3	1650000	0.3

Intermediate Hospital (Category B)	100000	1	1650000	16.5
Intermediate Hospital (Category A)	100000	3.7	1650000	61.1
Multi-Speciality Hospital	100000	9	1650000	148.5
Speciality Hospital	100000	3.7	1650000	61.1
General Hospital	250000	6	1650000	39.6
Family Welfare Centre	50000	0.08	1650000	2.6
Diagnostic centre	50000	0.08	1650000	2.6
Veterinary Hospital for pets and animals	500000	0.2	1650000	0.7
Dispensary for pet animals and birds	100000	0.03	1650000	0.5
TOTAL				346.9

Source: Consultant analysis based on URDPFI Guidelines

10.1.3. Community Facilities

Community facilities play a vital role in enhancing community engagement and interaction, ultimately improving the overall quality of life in an urban area. These facilities foster a sense of belonging, social cohesion, and well-being, making them integral to urban development.

In line with the URDPFI (Urban and Regional Development Plans Formulation and Implementation) guidelines and based on the projected population for the Agra Urban Centre, it is recommended that 200 hectares (Ha) of land be allocated for socio-cultural facilities. This allocation is intended to support a variety of spaces and amenities designed to enrich the social fabric of the city. These facilities include Anganwadi, Community Hall, music, dance and drama centre, old age home, recreational club, meditation centre, socio-cultural centre, exhibition /fair ground, etc.

Table 11-18 Space demand for socio cultural facilities

Sl	Category	Population Served	Per unit Land Area Requirement	Projected Population (Agra Urban Centre + Villages)	Area Requirement (Ha)
1	Anganwadi - Housing area/ cluster	5000	0.03	1650000	9.9
2	Community Room	5000	0.075	1650000	0.1
3	Community hall, mangal karyayala, barat ghar/ library	15000	0.2	1650000	0.2

4	Music, dance and drama centre	100000	0.1	1650000	1.7
5	Meditation and spiritual Centre	100000	0.5	1650000	8.3
6	Recreational Club	100000	1	1650000	16.5
7	Old age home	500000	0.01	1650000	0.0
8	Religious Facilities			1650000	
9	At neighbourhood / housing cluster level	500	0.04	1650000	132.0
10	At sub city level in urban extension	1000000	4	1650000	6.6
11	Socio – Cultural centre/ Exhibition cum fair ground	1000000	15	1650000	24.8
					200.0

Source: Consultant analysis based on URDPFI Guidelines

10.1.4. Security Facilities

In line with URDPFI Guidelines and MoHUA planning norms, early-stage planning must reserve land for police stations, fire services, and emergency response units, appropriately spaced and equipped for coverage across all zones of the township. A modern, tech-enabled security framework also becomes vital in areas near key national corridors, expressways, or international tourist circuits like the Agra–Mathura–Yamuna Expressway belt.

Table 11-19 Space demand for Security facilities

Sl	**Category**	**Population Served**	**Per unit Land Area Requirement**	**Projected Population (Agra Urban Centre + Villages)**	**Area Requirement (Ha)**
1	Police Station	90,000	1.50 Ha (Area inclusive of essential residential accommodation)	1650000	4.5
2	Traffic and Police Control Room	Township level			0.5
					5

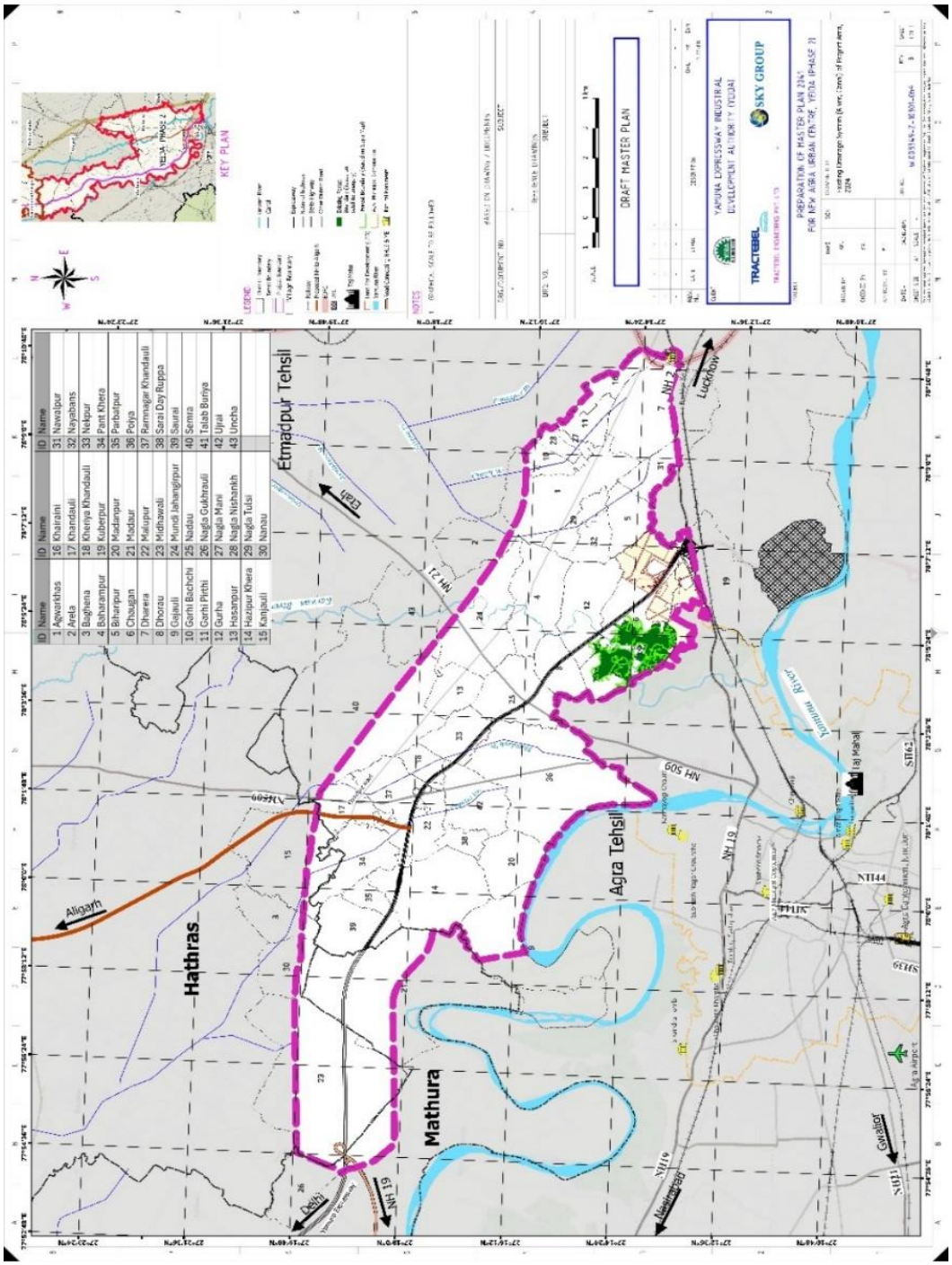
Source: Consultant analysis based on URDPFI Guidelines

11.5 Environment

11.5.1 Drainage

The Natural slopes of storm water drain are sloped towards the Yamuna River and Karwan River and subsequently, all the Storm Water finally going into the Yamuna River.

Figure 11-27 Existing Drainage System Map of the Project Area, 2024 (River, Canals)

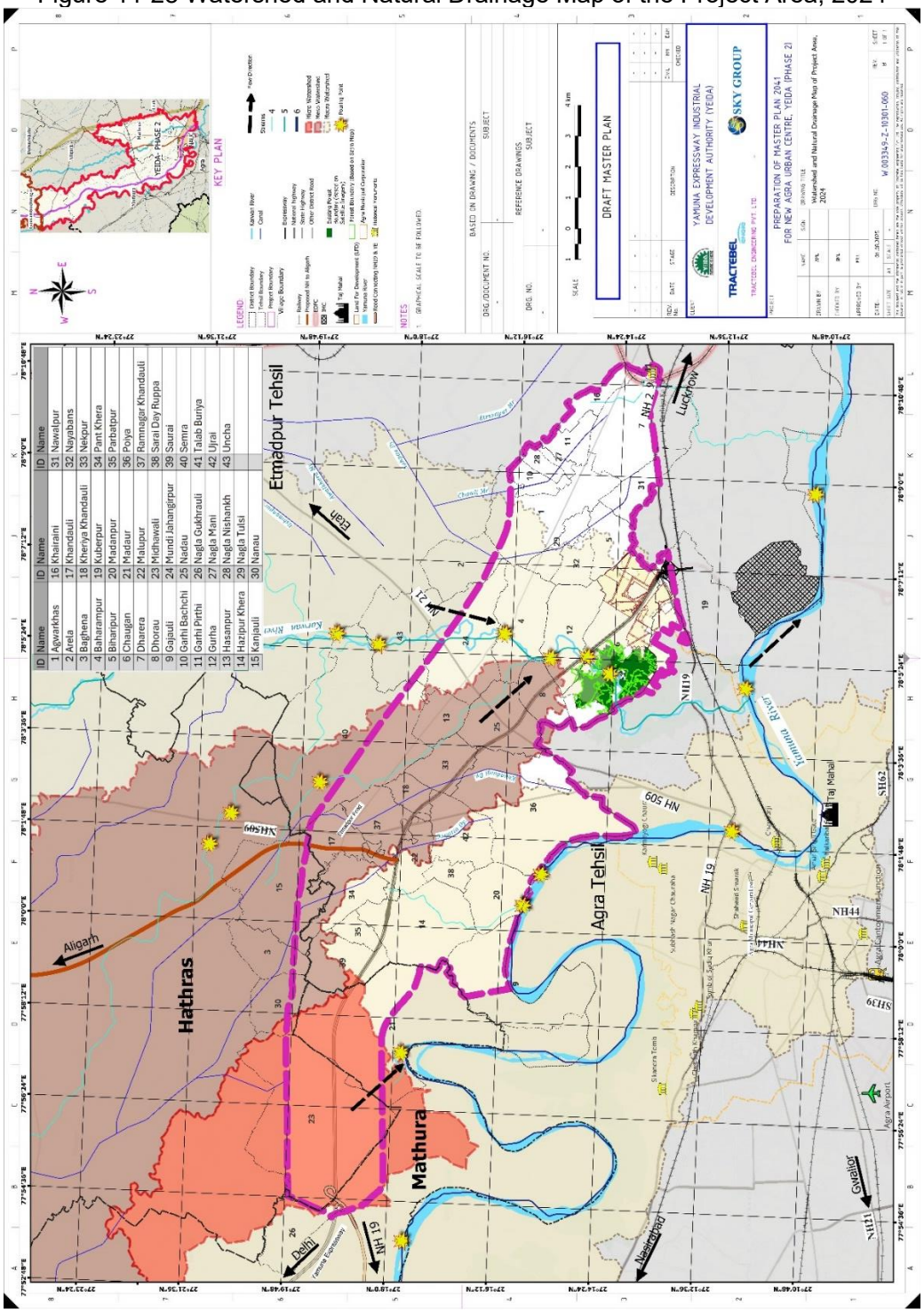


Source: Worldview-2 Satellite Imagery, Uttar Pradesh Irrigation & Water Resources Department, Consultant Analysis.

Based on analysis **six pouring points** have been identified. These Pouring Point locations are:

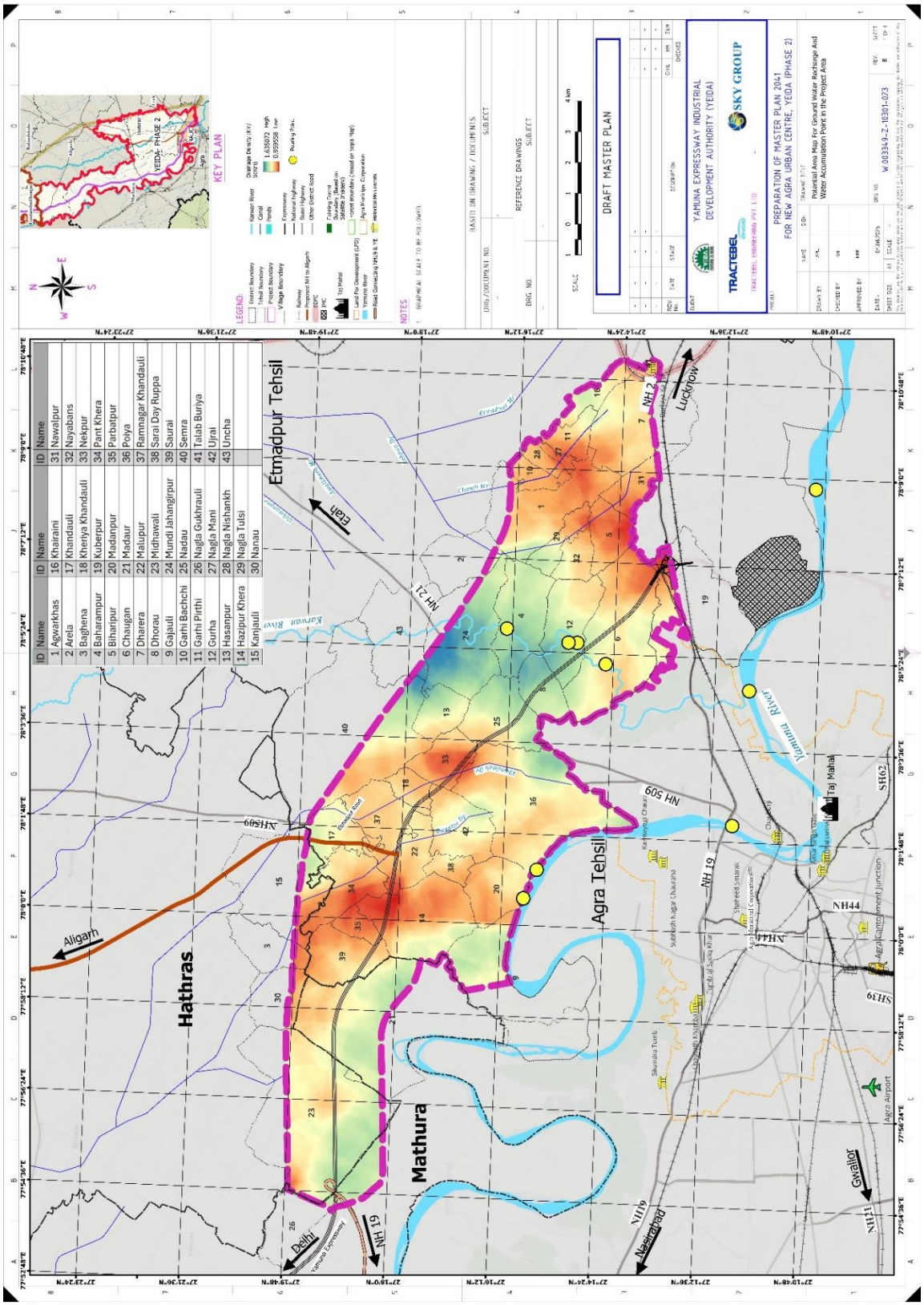
Pouring Point 1: Bahrampur – Phase 2
Pouring Point 2: Gurha Pouring – Phase 2
Pouring Point 3: Chaugan Pouring – Phase 2
Pouring Point 4: Chaugan – Phase 2
Pouring Point 5: Madanpur Pouring – Phase 1
Pouring Point 6: Poiya – Phase 1

Figure 11-28 Watershed and Natural Drainage Map of the Project Area, 2024



Source: USGS Earth Explorer, SRTM- DEM, Consultant Analysis

Figure 11-29 Potential Area Map for Ground Water Recharge and Water Accumulation Point



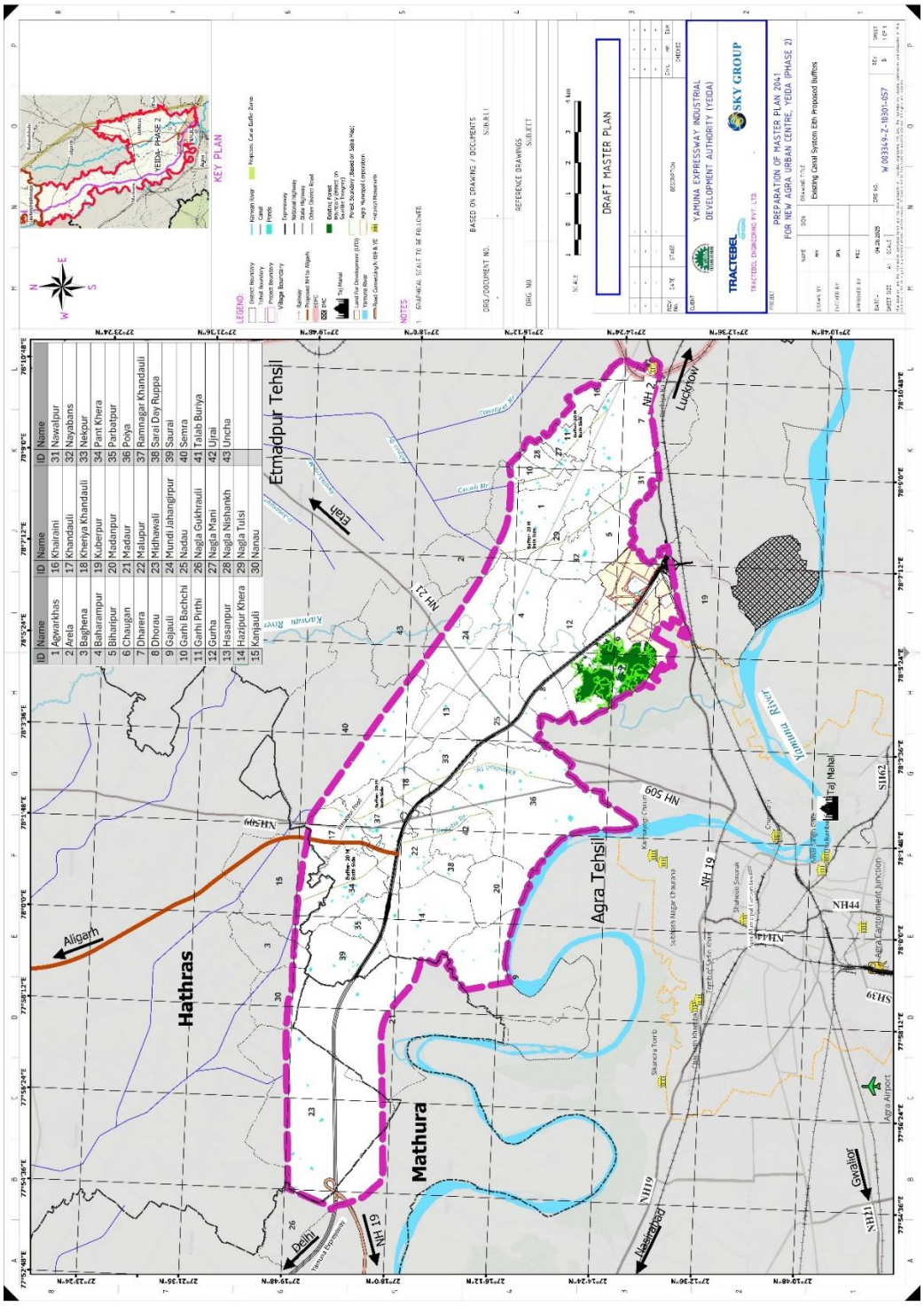
Source: USGS Earth Explorer, SRTM- DEM; Consultant Analysis

The Rainwater storage and harvesting tanks shall be proposed for the ground water recharge in the Agra urban centre area. The ground water can be reused for the drinking and other purpose.

11.5.2 Canal Buffer

As per the **Central pollution control board, Buffer zone classification guidelines**, a mandatory buffer to be left along a canal, typically referred to as a **"riparian buffer," usually ranges from 10 to 50 meters** .

Figure 11-30 Existing Canal System with proposed buffers; Source: Uttar Pradesh Irrigation & Water Resources Department



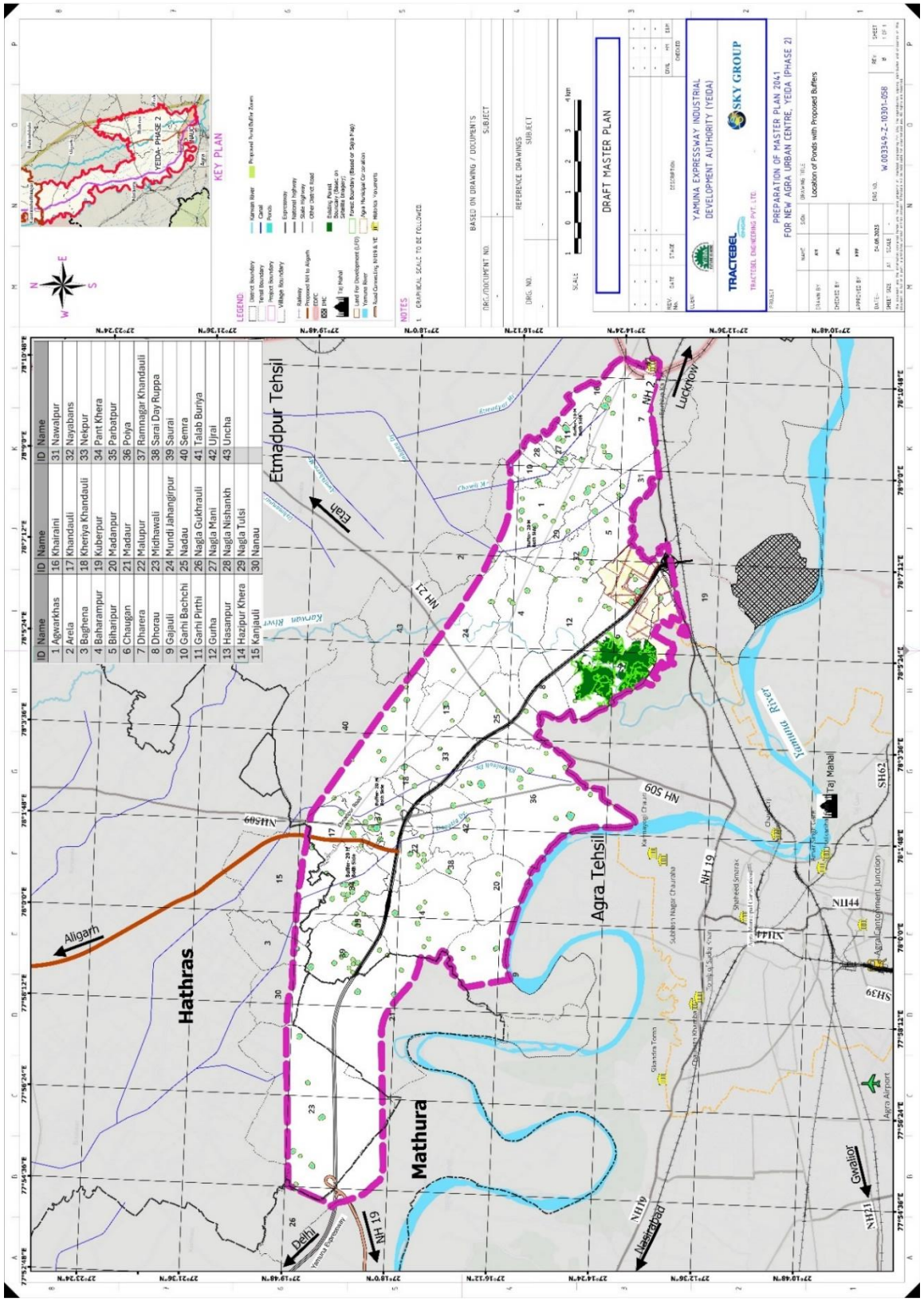
Source: Worldview-2 Satellite Imagery, Consultant Analysis.

For the **major order canals 20-meter buffer shall be demarcated on both sides while for the minor order canals 10-meter buffer shall be considered.**

- For lakes with an area of **10 hectares and above**, a buffer zone of **50 meters** from the boundary is stipulated.
- For lakes with an area of **less than 10 hectares**, including ponds and tank bed lands, a buffer zone of **30 meters** is required.
- A distance of **12 meters** must be maintained from the boundaries of major canals, streams, etc.
- Additionally, buffer of **2 meters** from the defined boundary of nallahs and storm-water drains is mandated.

In respect to foreshores of rivers, a river drive road with a minimum width of **18 meters** may be developed within the specified **50-meter** buffer zone.

Figure 11-31 Location of Ponds with proposed Buffer



Source: Worldview-2 Satellite Imagery, Consultant Analysis.

11.5.3 Reservoir Development

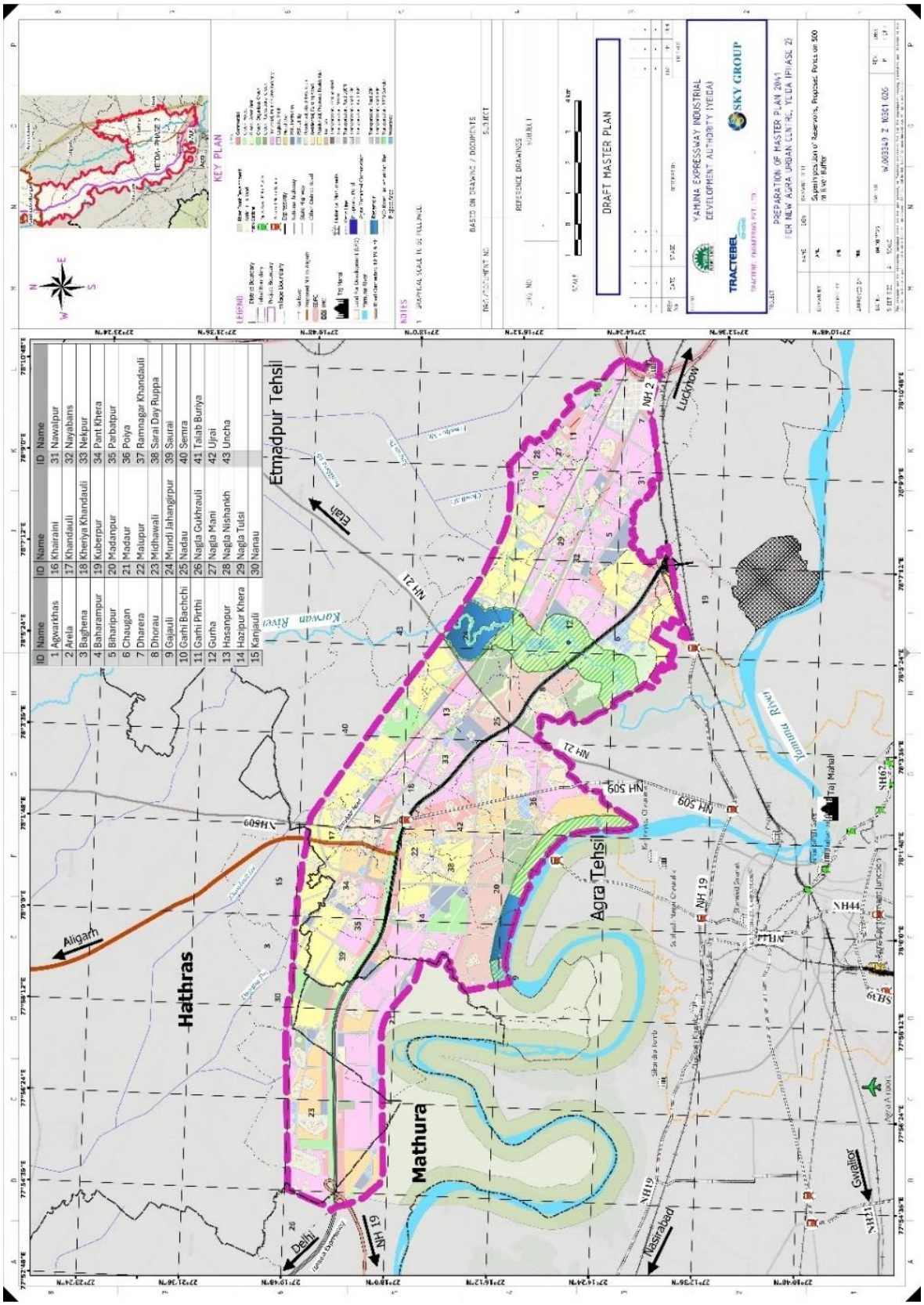
Key Guidelines and Legal Frameworks:

i. **Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines:** These guidelines emphasize the importance of integrating water resource management into urban and regional planning. They advocate for the inclusion of reservoirs in land use plans to support water conservation, flood control, and sustainable development. National Water Policy (2012):

Based on the idea to capture the rainwater, **2 major water reservoirs shall be developed.**

Water reservoirs are planned to be constructed at two designated locations near the Yamuna River and the Karwan River. The area required for the reservoir near the Yamuna River is 93.83 hectares, while the reservoir near the Karwan River will require 180.25 hectares.Aafter making water reservoir there should be control on fertiliser use in catchment area to improve the surface and ground water quality.

Figure 11-32 Reservoir area



Source: Consultant Analysis

11.5.4 Flood protection Measure

To ensure effective land use demarcation, it is essential for flood protection, aiming to minimize damage by regulating activities in flood-prone areas.

Key Guidelines and Legislative Measures:

National Disaster Management Guidelines on Floods (2008): recommend that areas susceptible to frequent flooding (e.g., 10-year return period) be designated for non-essential activities like parks and playgrounds, while critical infrastructure should be situated in zones with lower flood risk.

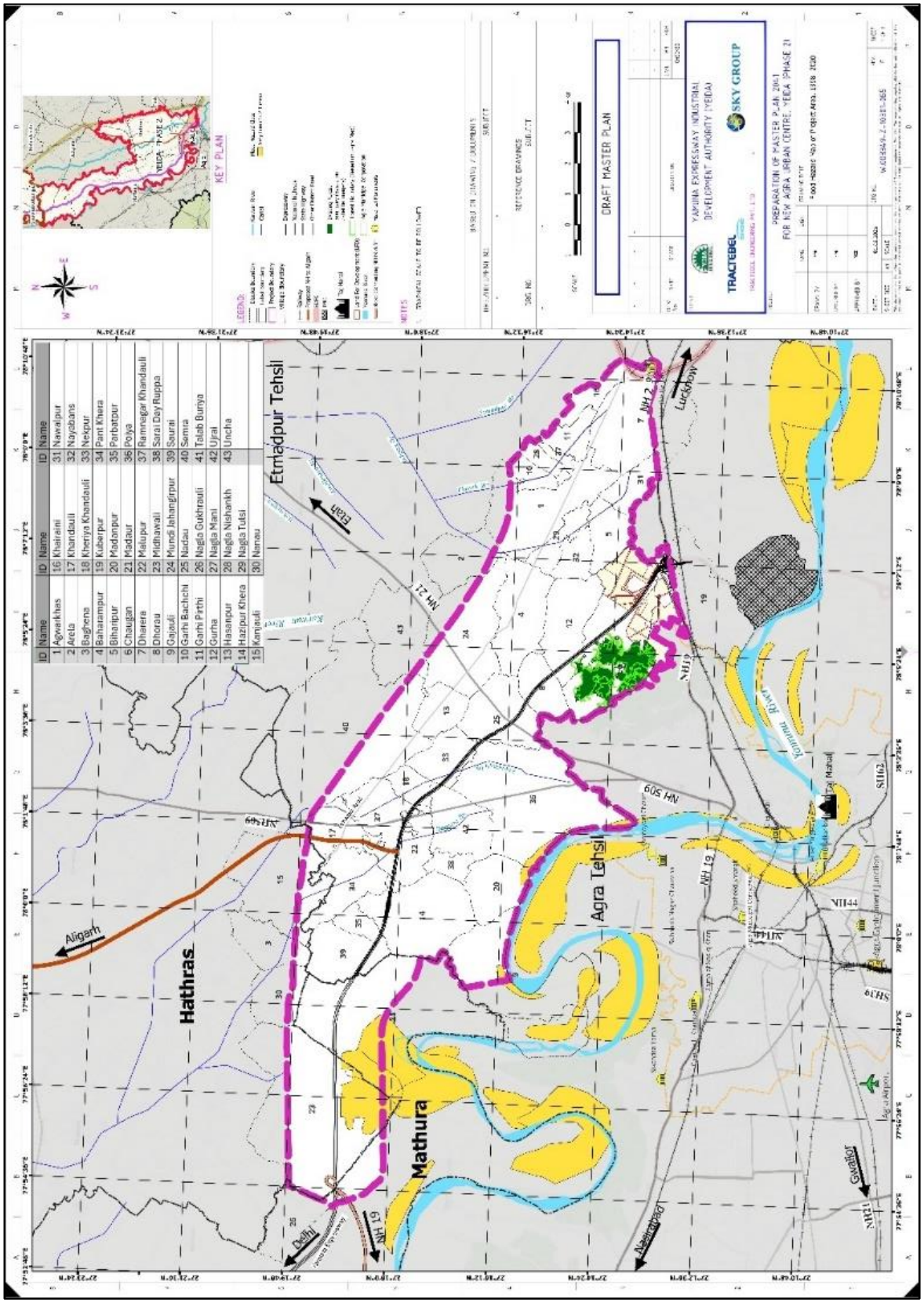
Model Bill for Flood Plain Zoning (1975): The Central Water Commission introduced this model bill to assist states in enacting legislation for floodplain zoning.

Flood Plain Zoning Act Implementations: States like Manipur (1978), Rajasthan (1990), Jammu and Kashmir (2005), and Uttarakhand (2012) have enacted floodplain zoning acts.

Following these guidelines at the time of the planning process shall ensure proper demarcation of the floodable area and the planning zones as per the requirement.

To protect the developable area embankbaent has been proposed as under.

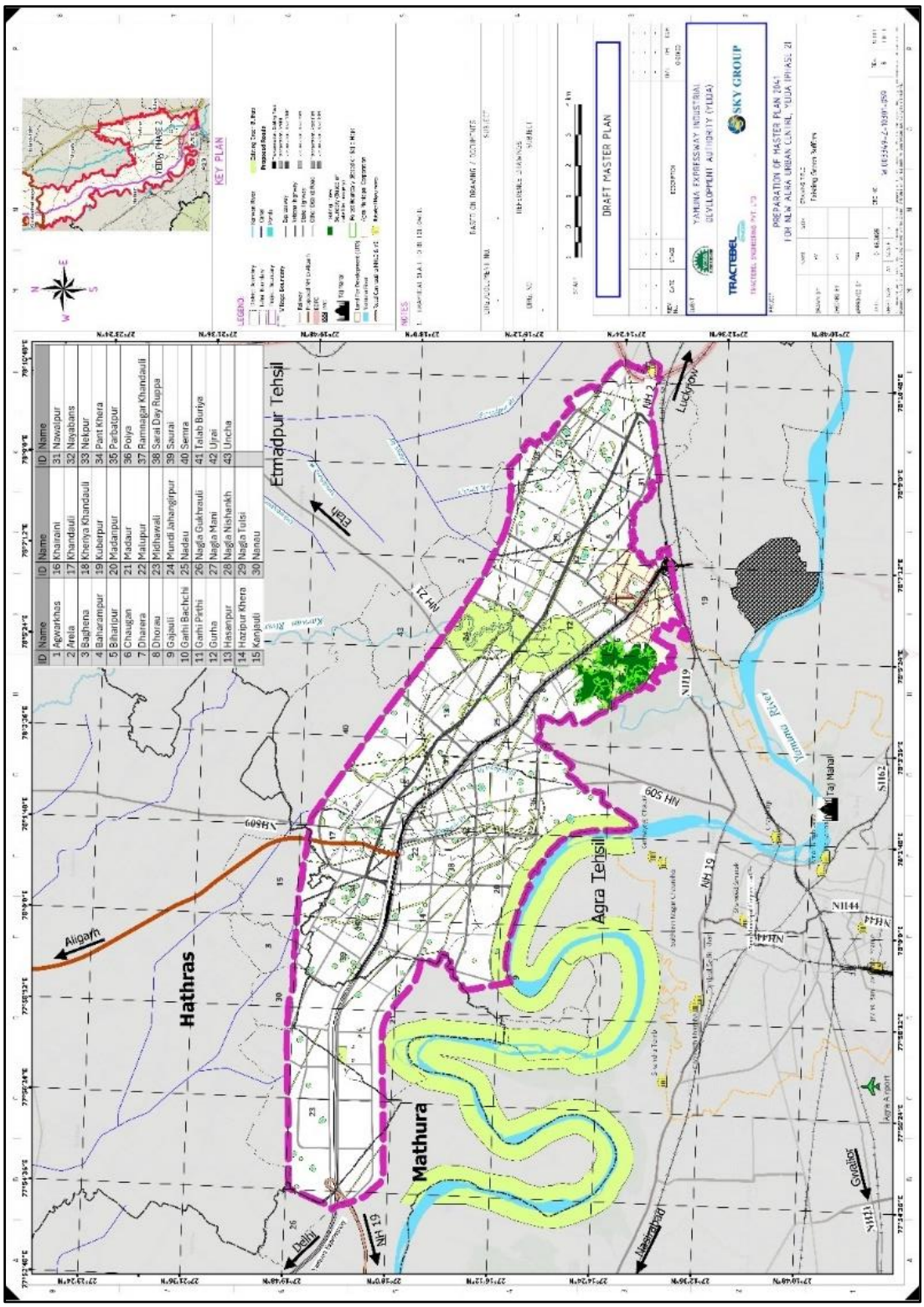
Figure 11-33 Flood Hazard Map of the Project Area, 1998- 2020



Source: Flood Hazard Atlas of Uttar Pradesh, National Remote Sensing Centre; Consultant Analysis.

11.5.5 Embankment Along River Yamuna

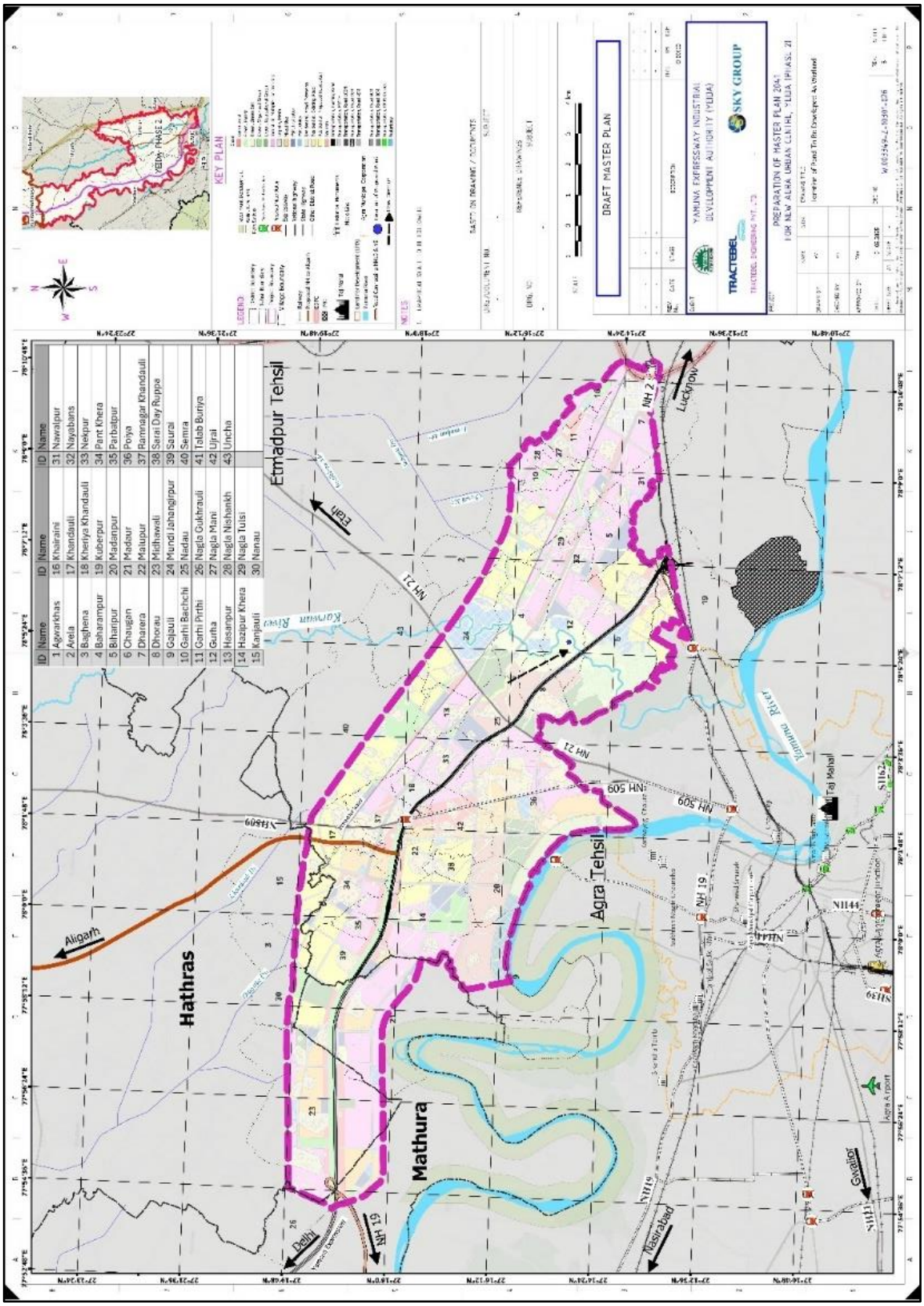
Figure 11-34 Proposed Buffer area along river Yamuna



Source: Consultant Analysis

To address the depression points as pouring points have been identified to prepare water retention area. All ponds location are proposed as wetland area as under.

Figure 11-35 Location of Pond to be Developed as Wetland



Source: Consultant Analysis

11.5.6 Green belts along them and provision of green spaces, parks and recreational spaces

11.5.6.1.1 Plantation Plan category along Road network

The **Uttar Pradesh Roadside Land Control Rules, 1964**, A key element of these rules is the establishment of "highway buffers" - areas alongside roads where development is restricted or prohibited.

Table 11-20 As per UP Roadside Land Control Rules, 1964, Permissible limit prescribed for road

S. No.	Categories of Roads	Open & Agricultural Areas (ft.)	Urban & Industrial Area (ft.)
1	National & Provincial Highways	75	60
2	Major District Roads	60	45
3	Other District Roads	50	30
4	Village Roads	20	20
5	Cement Concrete Tracks	30	30
6	Motor Roads (in hills)	50	Question does not arise
7	Bridle Roads (in hills)	25	Ditto

The project area has a hierarchy system for the road network from 100m ROW , 80m , 60m and 45m as the major order roads and other road below row 45m shall be planned at the sectoral level.

Figure 11-36 Road section highlighting location for Plantation

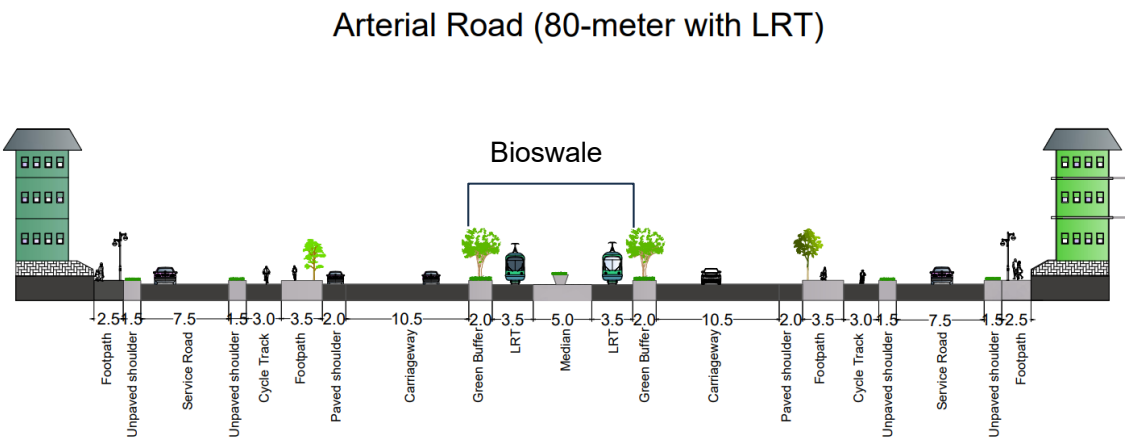
Source: Consultant

With reference and guidelines from the NHAI the following table depicts the plantation specifications as per the ROW.

11.5.6.1.2 Bioswales Plantation Along Internal Sectoral Roads

The typical bioswale proposed for the project area shall be linear and shallow and primarily shall be used to collect run-off water and besides treatment of stormwater, these shall help in mitigating flooding potential and diverting stormwater away from critical ROW and provide as a cooling effect in the localized area.

Figure 11-37 Reference of Proposed ROW 80m with Green Buffer to be planned as Bioswales



Source: Consultant

All the drainage channels, water bodies and the internal sector roads with ROW 18 and below shall have provision of planning for bioswales, in accordance with the plan prepared and adequacy of the available land.

Figure 11-38 Typical Road Section with Bioswale

Source: Sustainable Technologies evaluation program

The following plantations are suitable for Bioswales as per the climatic conditions of the project area and the feasible hierarchy of roads for which the bioswales is proposed:

- **Switchgrass (Panicum virgatum):** Known for its deep root system and ability to stabilize soil.
- **Big Bluestem (Andropogon gerardii):** Tolerates wet conditions and provides excellent erosion control.
- **Purple Coneflower (Echinacea purpurea):** Attracts pollinators and adds vibrant colour.
- **Vetiver (Chrysopogon zizanioides)**: Excellent for soil stabilization and can tolerate both drought and waterlogging.

- **Indian Grass (Sorghastrum nutans):** Adaptable to various soil types and conditions.
- **Buttonbush (Cephalanthus occidentalis**): Thrives in wet areas and attracts butterflies.
- **Crape Myrtle (Lagerstroemia indica):** Drought-tolerant once established and offers beautiful flowers.

11.5.7 Infiltration high potential area for Ground Water Recharge Zone

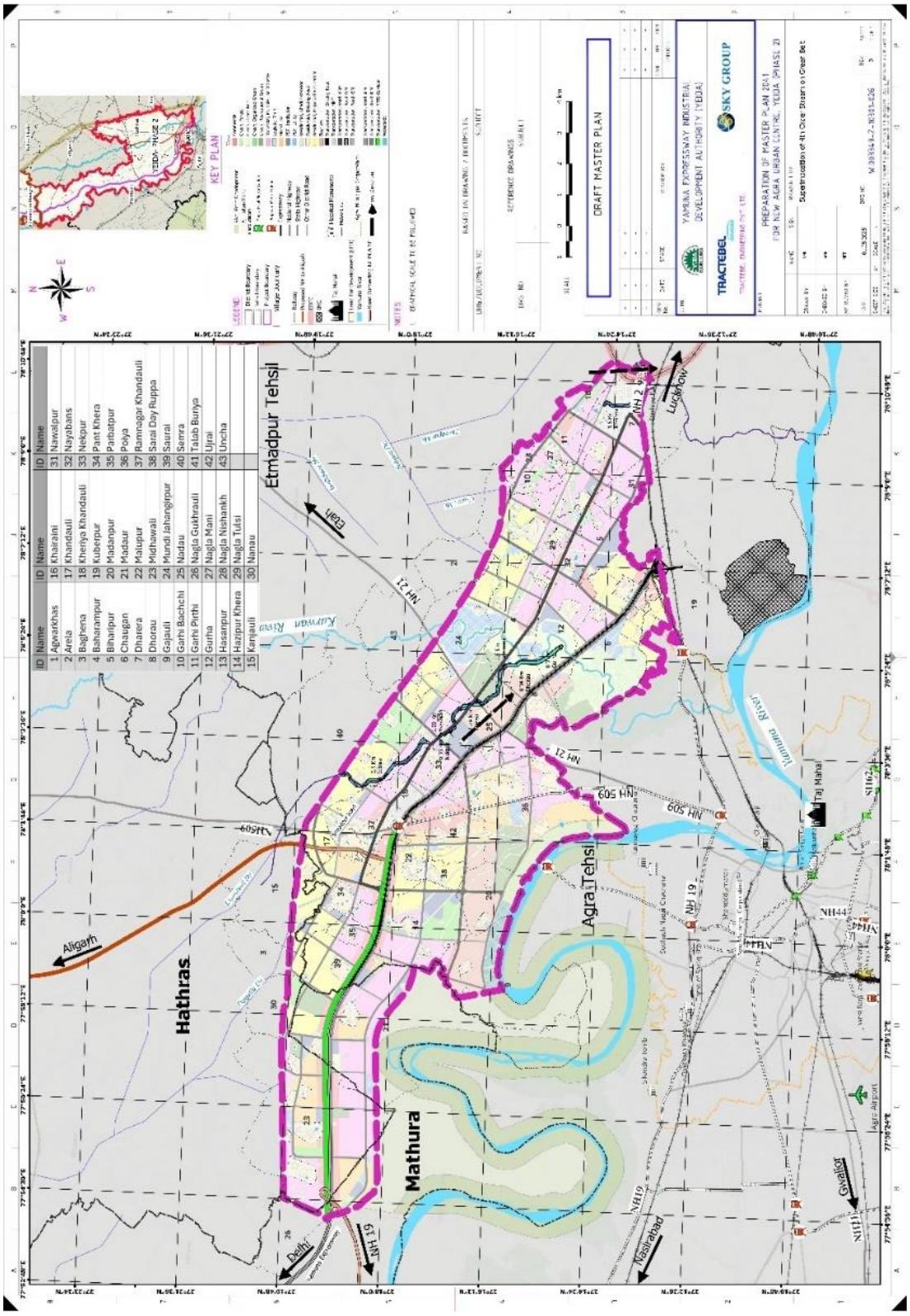
High Infiltration zones are being identified basis of pre monsoon and post monsoon water level of ground waterfront last 50 years data base. The identified location for infiltration zone by:

1. Putting Bioswales along road
2. Retain Ravine channels (2nd and 3rd order Stream) as natural drain
3. 4th order stream channel will be bounded by green plantation zone in sectors or land parcels. 4th order stream passes through the villages tabulated as under.
4. 5th and 6th order streams are protected by green buffer.

Table 11-21 Identified Infiltration areas in AUC

Sl No.	Block	Areas
1	Khandauli	Kheriya Khandauli
2	Khandauli	Saraj Day Ruppa
3	Khandauli	Ujrai
4	Khandauli	Madanpur
5	Khandauli	Hazipur Khera
6	Khandauli	Parbatpur
7	Khandauli	Saurai
8	Khandauli	Pant Khera
9	Khandauli	Khandauli
10	Khandauli	Ramnagar Khandauli
11	Khandauli	Malupur

Figure 11-39 Village-wise Length of Green Belt along 4th order streams in the project area



Source: Consultant Analysis

Water channels are for natural drainage to eradicate probability of flood in project area.

The following stream waters are to be conserved to eradicate Flooding, and it will help to control local climate. These water channels are:

Table 11-22 Area of Water Channels

Order	Phase	Name	Area (Ha)	Block
4th	Phase 3	Hasanpur	9.28	Khandauli
4th	Phase 1	Hasanpur	1.07	Khandauli
4th	Phase 3	Nadau	3.02	Khandauli
4th	Phase 1	Nadau	3.52	Khandauli
4th	Phase 2	Nadau	11.42	Khandauli
4th	Phase 2	Dharera	15.34	Etmadpur
4th	Phase 2	Dhorau	6.54	Khandauli
4th	Phase 2	Baharampur	9.2	Etmadpur
4th	Phase 2	Gurha	10.65	Khandauli
4th	Phase 2	Khandauli	9.28	Khandauli
4th	Phase 1	Khandauli	1.07	Khandauli
4th	Phase 3	Mundi Jahangirpur	0.03	Khandauli
4th	Phase 3	Semra	27.93	Khandauli

Source: Consultant Analysis

11.6 Disaster Management

11.6.1 Flood - As a Disaster

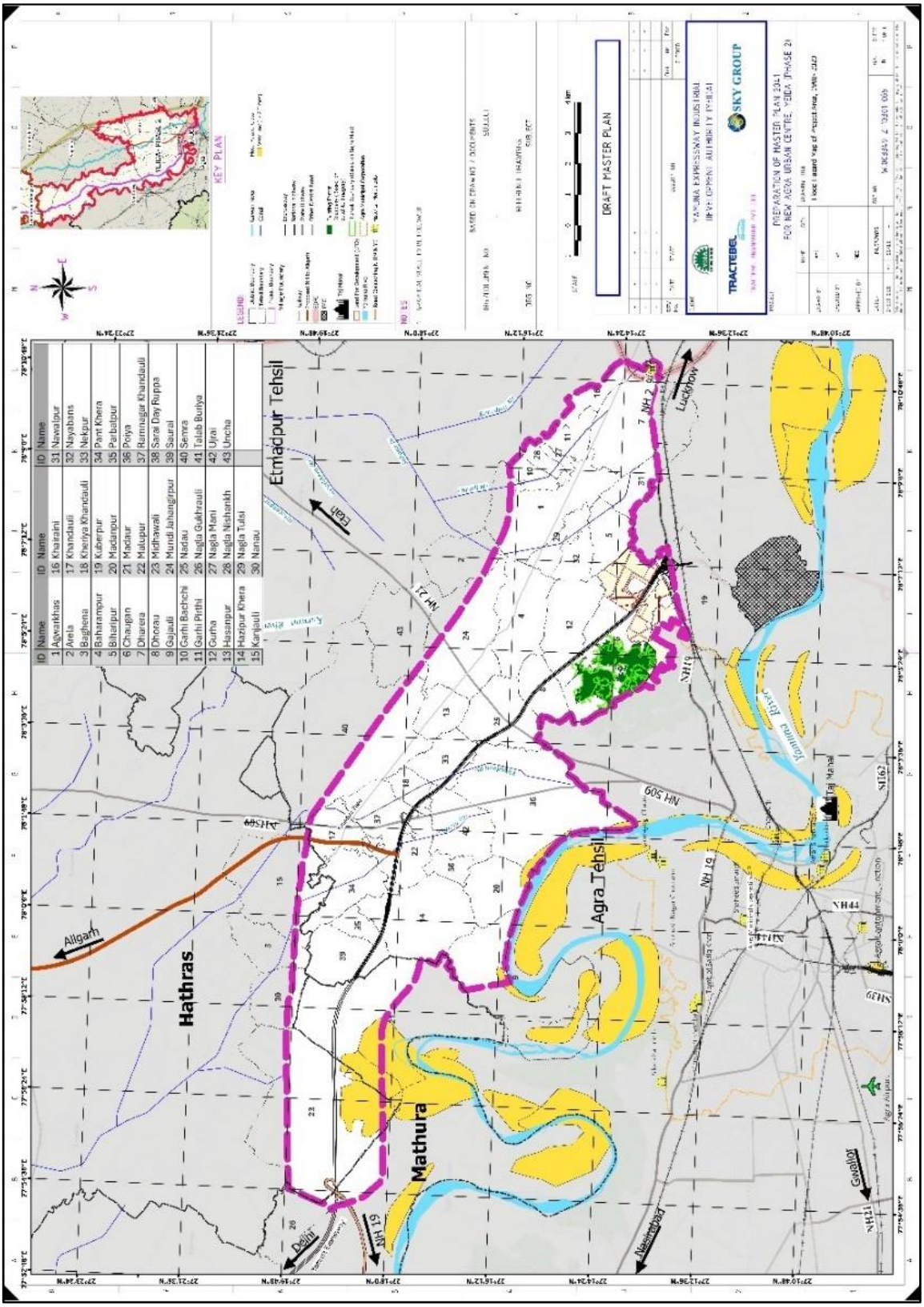
11.6.1.1 FLOOD PRONE AREA IDENTIFICATION

The **Flood Action Plan for Agra, 2024**, outlines the key flood-prone areas as follows:

- **High Flood Level**: 509 feet
- **Medium Flood Level**: 499 feet
- **Low Flood Level**: 495 feet

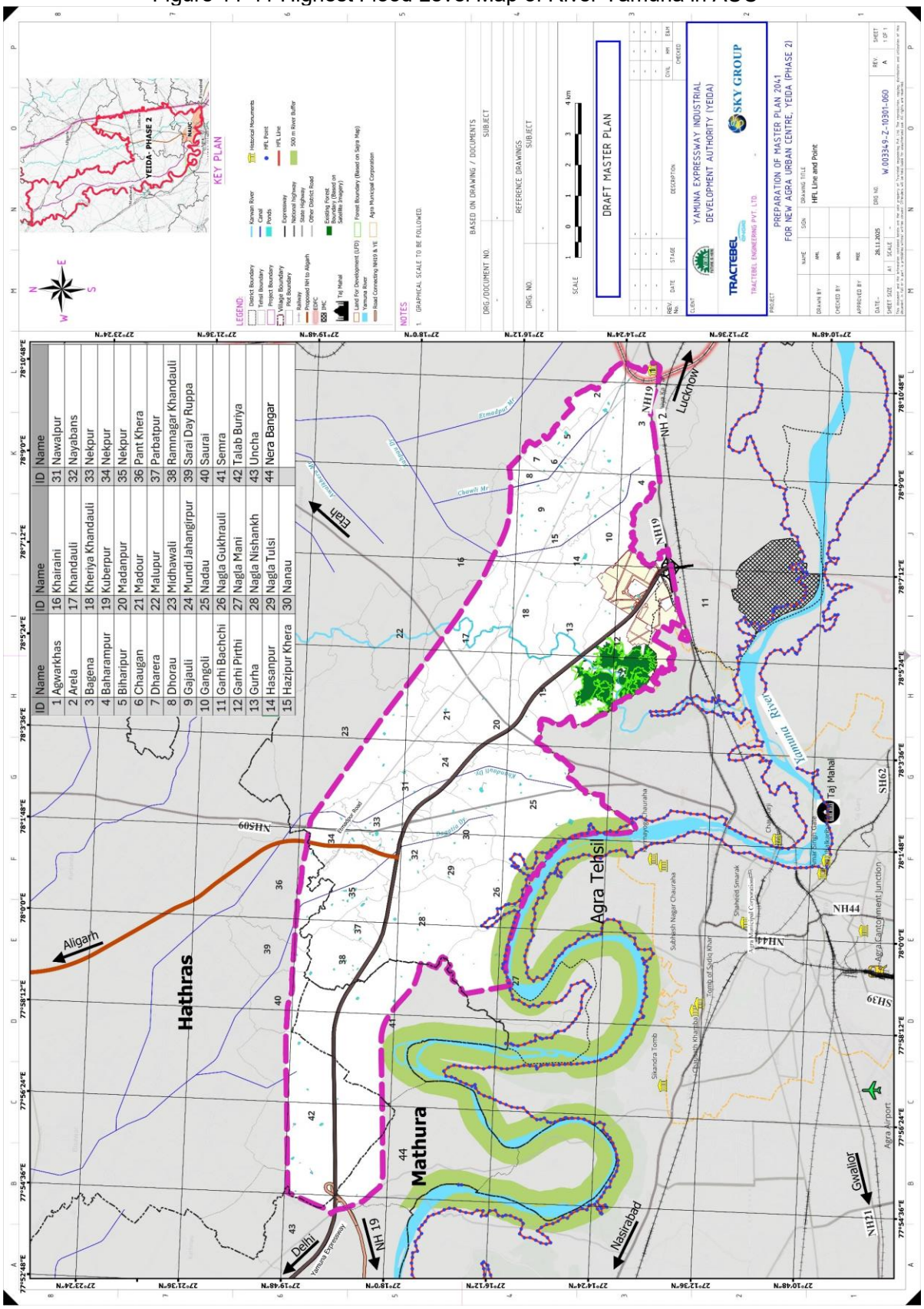
Urban regions such as Chhatta, Cantonment areas, and other low-lying parts of the city are prone to waterlogging when heavy rains coincide with rising river levels. These areas often lack sufficient drainage infrastructure, In rural regions, villages located along the Yamuna River and its tributaries, such as the Karwan and Sirsa rivers, are at high risk. Agricultural lands and settlements downstream of the Yamuna are frequently submerged when water is released from upstream barrages like Okhla, Gokul, or Kota. Specific villages like **Runakta, Nagla Pema, and Nagla Gokul are regularly impacted, with floodwaters damaging crops and infrastructure**. The **tehsils of Agra**, including areas like **Etmadpur**, **Kheragarh**, and **Fatehabad**, experience floods due to overflow from the Yamuna and its feeder channels. The absence of robust embankments in some areas further heightens their vulnerability.

Figure 11-40 Flood Hazard Map, 1998-2020



Source: Flood Hazard Atlas of Uttar Pradesh, National Remote Sensing Centre; Consultant Analysis

Figure 11-41 Highest Flood Level Map of River Yamuna in AUC



Source: Data received from Irrigation Department, Agra & Consultant Analysis

11.6.1.2 ACTION PLAN

11.6.1.2.1 Channel Improvement

A channel can be made to carry flood discharge at levels lower than its prevailing high flood level by improving its discharge carrying capacity

To improvise channel, streams order are being recognised:

- Stream 6: River Yamuna
- Stream 5: Karwan
- Stream 4: Tributaries of Karwan
- Stream 1-3 : ravines

Buffer zone has been identified for Stream 6 and Stream 5. Stream 4 will be played as natural drains of the area.

Figure 11-42: Riverine Channels Conservation

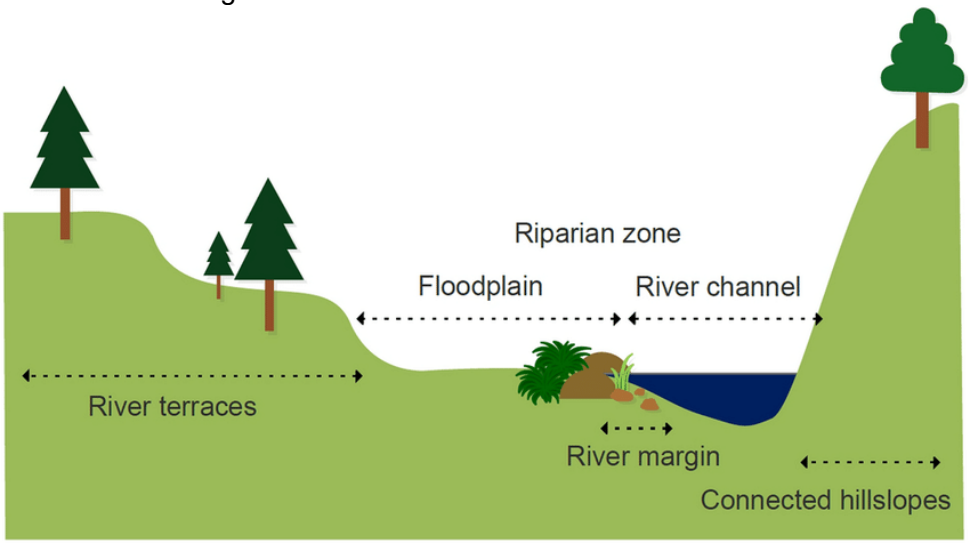
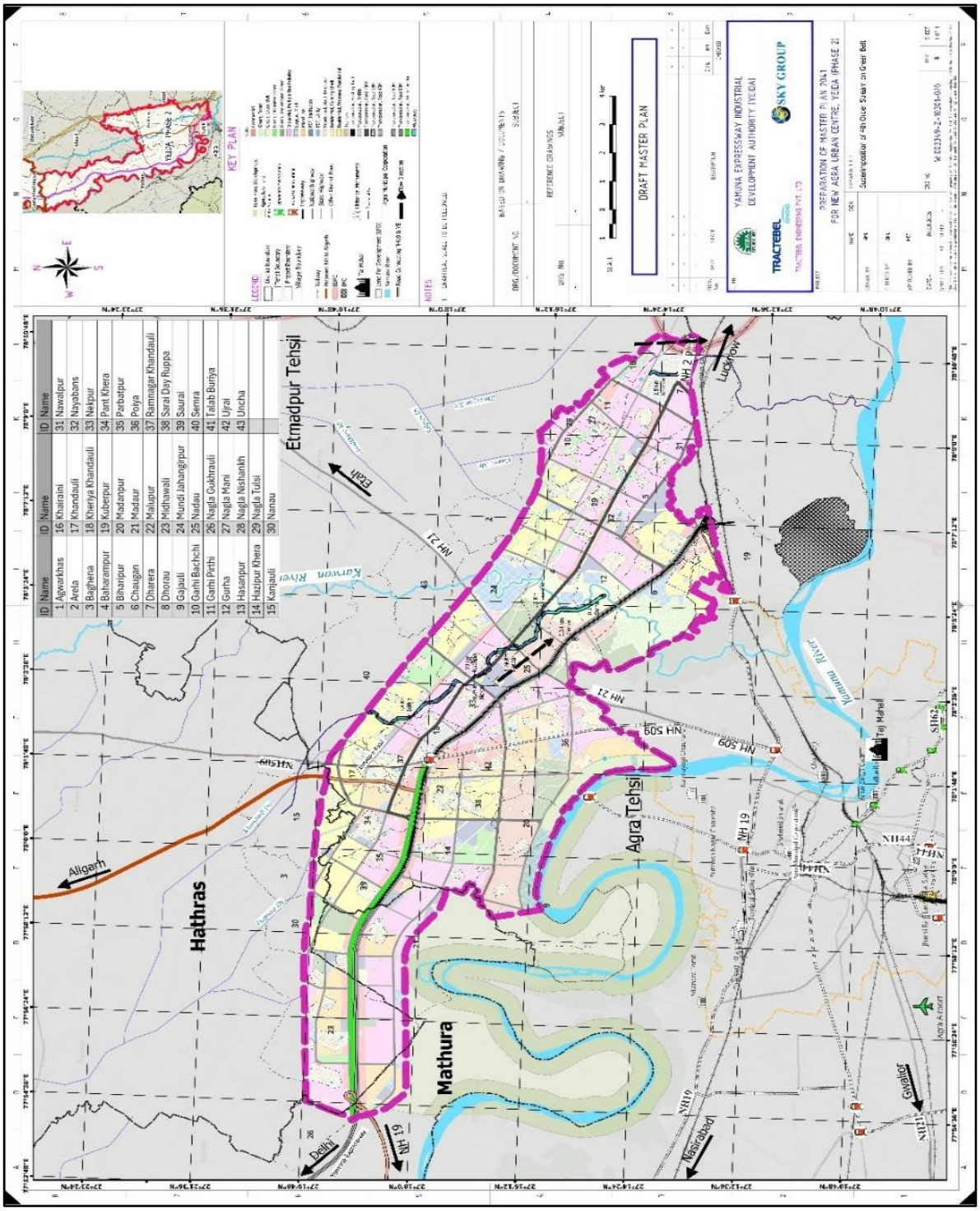


Figure 11-43 Channel Improvement Plan



Source : Consultant Analysis

11.6.1.2.2 Diversion

Diverting all or a part of the discharge into a natural or artificially constructed channel, lying within or in some cases outside the flood plains is a useful means of lowering water levels in the river. The diverted water may be taken away from the river without returning it further downstream or it may be returned to the river some distance downstream or to a lake or to the sea.

11.6.1.2.3 Catchment Area Treatment

Table 11-23 Length of stream have been identified to make bioswales

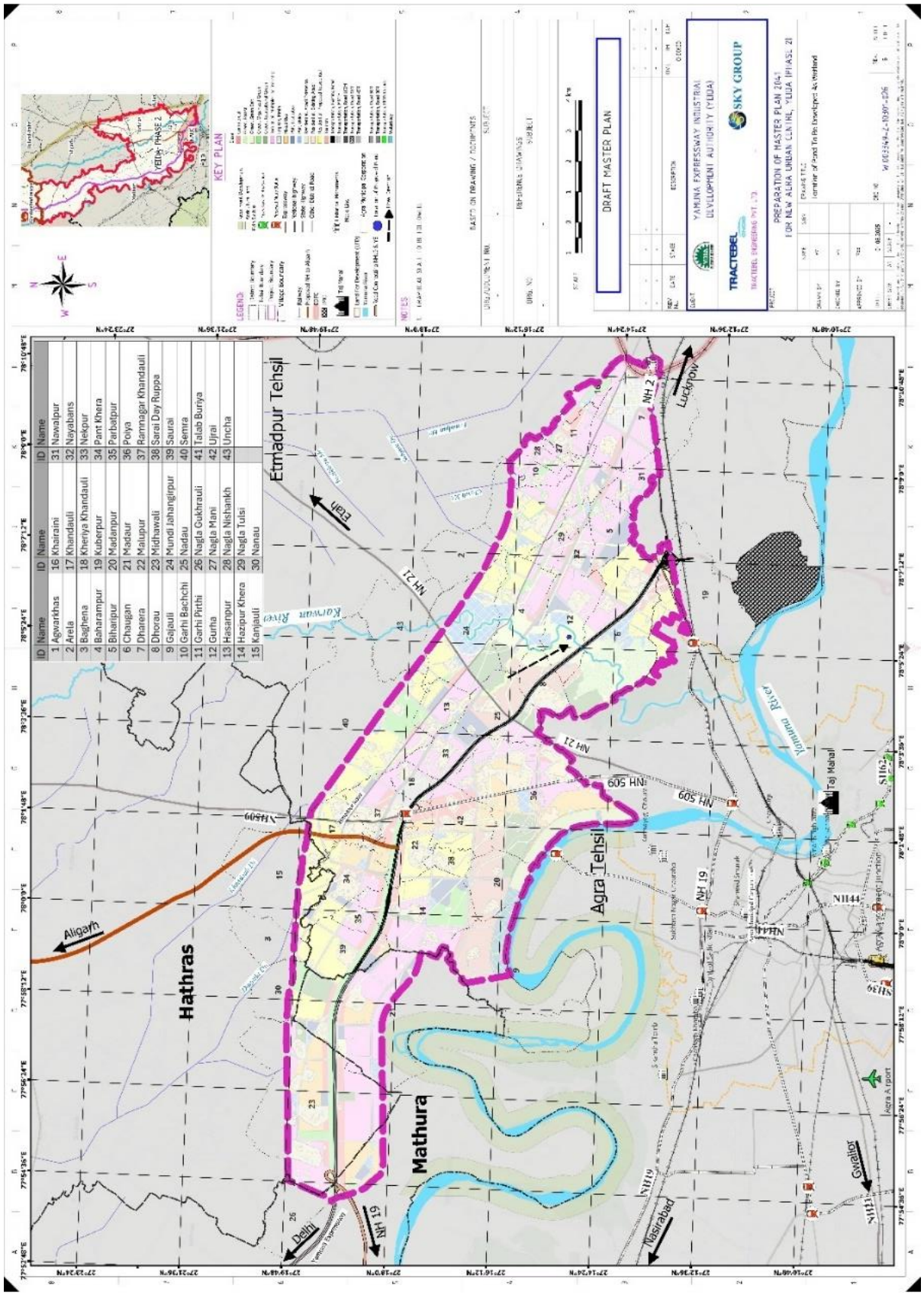
Stream Order (Length km)				
Villages	3	4	5	6
Agwarkhas				
Arela				
Baharampur	3.75	1.3	2.65	
Biharipur				
Chaugan			2.11	
Dharera	1.8	1.5		
Dhorau		0.34		
Gajauli			0.38	
Garhi Bachchi	0.79			
Garhi Pirthi	2.01			
Gurha	0.9	0.3	0.86	
Hasanpur		1.93		
Hazipur Khera	4.52			
Khairaini	1.88			
Khandauli	1.65			
Kheriya Khandauli				
Kuberpur				0.08
Madanpur	3.72		0.51	
Midhawali	3.67			
Mundi Jahangirpur	0.25		3.22	
Nadau	0.4	1.74		
Nagla Nishankh	0.76			
Nagla Tulsi				
Nawalpur				
Nayabans				
Nekpur		0.35		
Pant Khera				
Parbatpur				
Poiya			0.04	
Ramnagar Khandauli				
Sarai Day Ruppa				
Saurai				
Semra	0.38	3.4	1.15	
Ujrai				
Uncha	3.04		1.07	
Grand Total	25.71	17.07	11.99	0.08

Source: Consultant analysis

11.6.1.2.4 Wetland preparation and conservation

To address the above point depression points as pouring points have been identified to prepare water retention area.

Figure 11-44 Location of Pond to be Developed as Wetland



Source: Consultant Analysis

12. ZONING REGULATIONS

12.1. Introduction

The extent of the Agra Urban Centre is about 144.8 sqkm with a projected population of about 16.5 lakhs expected to reside in the area. **Zoning regulations and development control** play a crucial role in guiding urban growth, preventing uncontrolled expansion, and ensuring the long-term success of the city. By strategically allocating different land uses—such as residential, commercial, industrial, and recreational areas—zoning helps prevent conflicts and ensures efficient land utilization. Development control further reinforces these objectives by ensuring that urban projects align with environmental, social, and economic sustainability goals.

12.2. Legal Framework

The **Yamuna Expressway Industrial Development Area Building Regulations,2010** notified in exercise of the powers under sub-section 9 of section 19 of the Uttar Pradesh Industrial Area Development Act, 1976 (U.P. Act no-6 of 1976) read with section 21 of the Uttar Pradesh General Clauses Act, 1904 (U.P. Act no-. of 1904) and in supersession of notification no. 1582/77-3-09-8X/09, dated–September 09, 2009, would be the overarching regulations applicable for the Agra Urban Centre. Any further amendments brought to the above regulations would also be applicable to the Agra Urban Centre

12.3. Use Zones and Use Premises Designated

Use Zone means an area for any one of the specific dominant uses of the urban functions. Use premises means one of the many subdivisions of a use zone, designated at the time of preparation of layout plan, for a specific main use or activityThere shall be 17 use zones classified in 10 land use categories as under:

1. Residential
    a. Residential
    b. Village Abadi Area
    c. Village Abadi Extension Area
2. Commercial
3. Industrial
    a. Multiple Use Industry
4. Tourism
5. Public Semi-Public
    a. Institutional and Offices
    b. Utilities
6. Mixed Use
7. Transportation
8. Logistics
9. Greens
    a. Recreational
    b. Organised Green (Park & Playground)
    c. Green Belt (Including buffers of streams, canal, HT Lines and river buffers)
    d. Forest

10. Water bodies

12.4. Sub Division Of Use Zones And Sub Division Regulation

The Subdivision of land with a view to prepare a layout plan is done for a sector or area, which is designated primarily for a specific use zone already specified earlier as per the Master Plan. The objective of regulations detailed herein is to guide the preparation of layout plans for use areas. These regulations include norms for provisions of circulation system, open spaces, and facilities. The service plans corresponding to these layout plans for provisions of physical infrastructure like water supply, sewerage, drainage, power, telecom, gas and solid waste management etc. shall conform to the norms framed by the Authority from time to time.

12.4.1. Residential Use Zone

The sub-division of this use zone shall be governed by the provisions stated below:

- This use zone will have plotted development or flatted development or group housing or mix of both or all as per the scheme.
- Green and Open Spaces
- The minimum area required under open space for tot-lots, parks and playground shall be 0 .5%.
- Area under green and open spaces shall be minimum 10% of the scheme or sector and it shall be in addition to the area under Master Plan green areas.
- The minimum average width of the green and open space shall be 7.5m. The green and open spaces can be of varied shapes provided they fulfil the recreational need of the community.
- Rainwater harvesting (Roof top RWH or Land based RWH) will be mandatory for all buildings measuring plot size of 2400 sq. ft and above. It will be mandatory for all group housing projects.
- Apartment or group housing project, having more than 50 dwelling units should also install wastewater treatment facilities and include up till secondary level of wastewater treatment.
- Provisions should be made to produce 50 KW of solar energy for every 1000 sq ft of building footprint.
- Parking provisions will be made for all group housing projects and EV charging points will be provided in such projects.

- The landscape plan shall be prepared and submitted in accordance with the provisions of building regulations.

Roads

i. The minimum area under roads shall be 12%.
ii. The minimum Right of Way (ROW) of a vehicular road shall be 12 m. However, in situations where the road adjoins a park or any open space with building only one side, it may have a minimum width of 9 m.
iii. In case of group housing development, the minimum width of road shall be 8 meters.
iv. The roads shall have minimum width depending on the length of the road as follows-

a) Up to 400 m. – 12 m.
b) 400-600 m. – 18 m.
c) 600-1000 m. - 4 m.
d) Above 1000 m - 30 m.

v. The minimum width of Loop Street shall be 12 m. and maximum length 400 m.
vi. Maximum length of a 12 m wide dead-end road shall be 400 m. The road shall be provided with a cul-de-sac of 7.5 m radius at the dead end. Roads of less than 25 m length, cul-de-sac will not be required
vii. The provisions for rainwater harvesting shall be in accordance with the provisions of Building Regulations or as per policies of the State Government issued from time to time.
viii. Appropriate rainwater harvesting structures need to be installed. It is recommended to install one recharge pit for every one km of drain.
ix. The maximum area under commercial use shall be 5%.
x. The minimum area under facilities shall be 5%.
xi. Provision of Social and Physical Infrastructure – In addition to the city level facilities proposed in Land Use Plan, provision of physical and social infrastructure shall be planned for community & sector level as suggested in section ‘hierarchy of land uses’, chapter “Proposed Land Use Plan”. Authority reserves the right to change the provisions mentioned above by recording the reasons for the change.
xii. Every alternate streetlight should be solarlight .

12.4.2. Non-Residential Use Areas

The sub-division of these use zones shall be governed by the provisions stated below:

i. These use zones will have plotted development or flatted development or both as per the scheme.
ii. Green and Open Spaces- 10% of the total area of non-residential sector/area shall be green
iii. Rainwater harvesting (Roof top RWH or Land based RWH) will be mandatory for all buildings measuring plot size of 2400 sq. ft and above.
iv. Commercial and Institutional uses having built up area of more than 50,000 sq ft should install waste water treatment facilities.
v. Area under green and open spaces of the scheme or sector shall be in addition to the area under Master Plan green areas.

vi. Provisions should be made to produce 50 KW of solar energy for every 1000 sq ft of building footprint.

vii. Provisions for EV Parking along with charging stations to be made in all parking lots, public spaces and filling stations

viii. Provisions should be made for bicycle parking. At least 10% of parking space to be earmarked for the bicycles.

ix. Buffer zone for water bodies- 500 m buffer to be maintained along rivers (streams of order 5 and above). No new construction is permissible within 200 mts from the river embankment. From 200 mts to 500 mts, a prior permission from the competent authority is required for the permissible activities outlined in the table 16.9. A minimum of 50 m buffer should be provided around all the existing ponds along with Pond edging/ lining (boulder). Toe wall (1.5' hight) and properly constructed movement corridor all around the ponds should be provided.

Roads

i. The minimum area under roads shall be 10%
ii. The roads shall have minimum width depending on the length of the road as follows-
a) Up to 400.0m. - 18 m.
b) 400.-.1000.0m. - 24.m.
c) Above 1000.0m. - 30 m.
iii. The width of other roads shall be in accordance with the width specified in Master Plan.
iv. The provisions for rainwater harvesting shall be in accordance with the provisions of Building Regulations or as per policies of state Government issued from time to time.
v. The maximum area under commercial use shall be 2% (For areas other than commercial use zones).
vi. The minimum area under facilities shall be 5%.

Seamless Pedestrian Networks and Bicycle Lanes in site development of all group housings, institutional buildings, and commercial areas should be provided

12.5. Zoning Regulations

12.5.1. Objectives

Residential, Commercial, Mixed Use, Industrial, public semi-public, recreational green, parks & green belts and water bodies are shown in the Master Plan. The ancillary/incidental activities that are not displayed separately in the land use map are to be permitted according to the zoning regulations. The provision of ancillary and incidental activities is required to be made by competent Authority according to the zoning regulations and the specific requirement of a particular scheme so that public health, welfare and security may be ensured in the proposed planned area.

12.5.2. Salient Features of Zoning Regulations

The development of various activities in ever changing physical, social and economic scenario of cities is an on-going process. In these submitted zoning regulations, the approval of various activities under main land-use zones has been laid down to simplify the procedures of permission and responding to the requirements of development. The salient features of the zoning regulations are as under:

The permission of various activities in the main land-use areas are made user-friendly through matrix

The concept of flexible and multi-utility use of land is adopted instead of regimented use of land, so that it may promote the fast development of the town.

The planning and permission of multi-utility of a piece of land will be based on their ancillaries and market demand, so that the operational and economic capability of inter-dependent multi-utility land may be enhanced and main land use also retain the basic character.

The concept of floating land-use has been adopted in zoning regulations, according to which the activities that are not envisaged in the general scheme/layout plan and these

Zoning Regulations may be considered in future according to their merits

Categories of Different Activities The different activities to be provided or planned in the proposed main land-use are as under

(a) Permissible Uses: These activities are ancillary to the main land use and are planned and permitted.

(b) Conditional Uses: These activities which are planned and permitted under the required terms and conditions in connection with the main land-use based on their specific requirements. The required terms and conditions are given with the zoning matrix.

(c) Permissible uses under the specific permission of the Authority: These activities will be planned or permitted under specific permission of the Authority keeping in view the infrastructure and its environmental impact on the surrounding area etc. i.e. based on their merits and demerits.

(d) Prohibited Activities: These activities will generally not be permitted in the respective land-use.

12.5.3. Floating Activities

After coming of the scheme in force some activities are proposed according to the changing physical, social, economic and political scenario of the city, which become essential according to the demand of time, but are not envisaged in the scheme of zoning regulations. Such activities could be bus/ truck/ rail terminal, public utilities and services, electric substation, treatment plant etc. To permit such activities it becomes inevitable at times, to change the land-use. Therefore, to permit for such activities, as per demand, the concept of floating use/activity is included.

Its advantage is that there will be no centralization of non-performing activities in any single land use zone. In addition to that, to curb any ill effect or deterioration on the dominant character of a land-use zone due to extra floating activities and to control the pressure on the establishments in the concerned area, a provision has been laid down that if floating activities are not permissible in a particular zone, it may be allowed by the Authority by specific permission on the ground of the merits/ demerits of the case.

12.6. Definitions Of Use Premises

Use premises means one of the many sub-divisions of a use zone, designated at the time of preparation of layout plan, for a specific main use or activity. The use premises are defined as follows:

Table 12-1 Defining Land Use/ Activities

Sl	Activities /Uses	Definition
1	**Residential**	
1.1	Single House/ Plot/ Flat /Row Housing/Affordable Housing	Residential House/Plot – Plotted Housing: A premise for one or more than one dwelling unit and may have on it one main building block and one accessory block for garage / garages and servant quarters. Residential Flat: Residential accommodation for one family (one household) which may occur as part of group housing or independently
1.2	Group Housing	A premise of size not less than 2000 sq.m. comprising of residential flats with basic amenities like parking, park, convenient shops, public utilities etc.
1.3	Guard chaukidar residence	Residential accommodation for watch and ward staff responsible for security and/ or maintenance of principal use.
2	**Commercial**	
2.1	Retail shops/Platform	A premise for sale of commodities directly to consumers with necessary storage
2.2	Repair shops	A premise equivalent of a retail shop for carrying out repair of household goods, electronic gadgets, automobiles, cycles etc.
2.3	Personal Service shops	A premise equivalent of a retail shop providing personal service like tailor, barber etc.
2.4	Vending booth	A premise in the form of booth for sale of commodities of daily needs either through a mechanical installation or otherwise.
2.5	Showroom	A premise with facilities for display, sale, and storage of commodities.
2.6	Weekly market	An area used in a week by a group of informal shop establishments in the form of a market. These markets shift from one area to another on different days of the week.
2.7	Convenience shopping centre	A group of shops not exceeding 50 in number in residential areas serving a population of about 5,000 persons
2.8	Local/sector level shopping centre	A group of shops not exceeding 75 in number in residential areas serving a population of about 5,000 persons.
2.9	Shopping centre/ commercial centre/ shopping mall	Shopping Centre/Commercial Centre: A premise having group of shops/commercial establishments Constructed on designated plots. Shopping Mall: A Shopping Mall is one or more buildings forming a complex of shops representing merchandisers, with interconnecting walkways enabling visitors to easily walk from unit to unit, along with a parking area – a modern, indoor version of the traditional marketplace with controlled Environment.
2.10	Informal commercial unit/platform	A premise meant for commercial activities for informal sector.
2.11	Wholesale market/Mandi	A premise from where goods and commodities are sold/ delivered to retailers. The premise includes storage, godown, loading and unloading
2.12	Bakery/Confectionary/ Atta Chakki	Bakery: A Bakery (also called baker's shop or bakehouse) is an establishment which produces or/and sells baked goods from an oven such as bread, pies, bagels etc.

Sl	Activities /Uses	Definition
		Confectionary: A premise for retail sale of confectionary items directly to consumers with necessary storage. Atta Chakki: A premise where grinding of grain, spices and dried eatables are carried out.
2.13	Coal/wood/Building material market	Coal Market: A premise for retail sale of coal directly to consumers with necessary storage. Wood Market: A premise for retail sale of fuel wood directly to consumers with necessary storage Building Material Market: A premise for retail sale of building materials like timber, stone, bricks, cement, hardware, paints etc. directly to consumers with necessary storage.
2.14	Vegetable/Fruit market	A premise for retail sale of fruits and vegetables in shops (area not more than 10 sq.m.) or platforms.
2.15	Cold storage	A premise where perishable commodities are stored in covered space using mechanical and electrical devices to maintain the required temperature etc.
2.16	Hotels	A premise used for lodging of .5 persons or more on payment with or without meals.
2.17	Service Apartment	A serviced Apartment is a type of furnished apartment available for short term or long-term stays, which provides amenities for daily use.
2.18	Restaurant/ Canteen/ Food Court	Food Court: A Food Court is a (usually) indoor plaza or common area within a facility that is contiguous with the counters of multiple food vendors and provides a common area for self-serve dining. Food Courts may be part of shopping malls etc. or may be stand-alone development.
2.19	Cinema/Multiplex	A premise with facilities for projection of movies and stills with a covered space to seat audience
2.20	Drive-in cinema	A cinema with facilities for projection of movies and stills for car audience including an audience for other audience.
2.21	Exhibition hall/ Exhibition centre	Exhibition Hall: A hall or part of a premise with facilities for exhibition and display of paintings, photographs, sculptures, murals, ceramics, handicrafts or products of specific category/ class. Exhibition Centre: A premise with facilities for exhibition, display and storage of paintings, photographs, sculptures, murals, ceramics, handicrafts, or products of specific category/ class
2.22	Banquet hall/ Barat Ghar	A premise used for marriage and other social functions and run by an individual, or institution or a public agency.
2.23	Electric Charging Station	A premise and an infrastructure that supplies electric energy for the charging of plug-in electric vehicles- including electric cars, neighbourhood electric vehicles and plug-in – hybrid to consumers. It may include servicing of automobiles.
2.24	Petrol pump/Diesel station	Petrol/Diesel / Gas filling station: A premise for sale of petroleum products to consumers. It may include servicing of automobiles.
2.25	Oil depot and LPG refilling plant	Oil Depot: A premise for storage of petroleum products with all related facilities LPG Refilling Plant: A premise for refilling facilities of LPG on bulk basis
2.26	Gas godown	Gas Godown: A premise where cylinders of cooking gas or other gas are stored.

Sl	Activities /Uses	Definition
2.27	Warehouses for non-hazardous items	Warehouse/ Godown for Non-Hazardous items: A premise for exclusive use of storage of non-hazardous goods and commodities in a manner as per requirement of respective goods/ commodities. The premises include loading and unloading facilities
2.28	Warehouses for hazardous items	Warehouse/ Godown for Hazardous items: A premise for exclusive use of storage of hazardous goods and commodities in a manner as per requirement of respective goods/ commodities. The premises include loading and unloading facilities
2.29	Automobiles showroom/Automobile Showroom cum Service Station	Automobiles Showroom: A premise for display, sale, and repair of automobiles. Automobile Showroom cum Service Station: A premise for display, sale, repair and servicing of automobiles.
2.30	Weigh bridge/ Dharmkanta	A premise with weighing facilities for empty or loaded trucks.
2.31	Storage Godown for Inflammable Items (LPG, Petrol, Diesel, Kerosene, Lubricants, Aviation Fuel etc)	A premise where inflammable items are stored in covered space
2.32	Agriculture Produce Selling Market/ Grain Market	A premise having storage and sale facilities for agricultural products.
2.33	Junkyard	A Junkyard is an establishment or place of business which is maintained, operated or used for storing, keeping, buying, or selling junk, or for the maintenance or operation of an automobile graveyard.
2.34	Steel/ Cement/ Building Material Yard	A premise having storage and sale facilities for bulk building materials like cement, steel etc.
3	**Industrial**	
3.1	Service industries	Any industry which is engaged in producing, servicing or repairing goods, or articles for consumption in the neighbourhood/local area.
3.2	Cottage industries	An industry where the creation of products and services is home based, rather than factory based
3.3	Flatted factories	A premise having a group of small industrial units having up to 50 workers with non-hazardous performance. These units may be located in multi-storeyed buildings
3.4	Information/ software technology industry	A premise where computer software etc. is prepared for information technology and I.T. enabled services
3.5	Small/light industry	Small/light industries as per classification of the State Government
3.6	Industrial plot (specific industry type)	A premise for a unit within a group of such units for manufacturing of specific products like electric goods etc.
3.7	Industrial Plot (integrated use)	A premise where industrial use is allowed along with staff housing commercial and facilities as an integrated use.
3.8	Medium & Large-scale industry	Medium and large-scale industries as per classification of the State Government.
3.9	Film centre/ TV radio programme production centre	A premise with facilities for shooting, recording, broadcasting and transmission of news and other programs through the respective medium. It may include some hostel accommodation for guest artists, and transmission facilities like tower.
3.1	Biotechnology/ Biotech Park	A Premise which is dedicated to scientific research or production, or business related to biotechnology.
3.11	Non- Polluting Agro based & food processing units	A premise having a group of industrial units with non-hazardous performance primarily working on agro based products
3.12	Milk Pasturing Plant	Milk processing plant means a place, premises, or establishment where milk or milk products are collected, handled, processed,

Sl	Activities /Uses	Definition
		stored, bottled, pasteurized, aseptically processed, bottled, or prepared for distribution, except an establishment that merely receives the processed milk products and serves them or sells them at retail.
3.13	Milk Collection Centre	Milk Collection Centre or Milk Bulking Centre means any place, premises or establishment where raw milk is received, collected, handled, stored or cooled and prepared for further transportation
4	**Logistics**	
	Freight complex/ Logistic Park	Freight Complex: A complex having premises for booking and storage of goods that a train, truck, ship, or aircraft carries Logistic Park: A premise within which all activities related to transport, logistics and the distribution of goods- both of national and international Transmit, are carried out by various operators on commercial basis and includes facilities like warehouses, distribution centres, storage areas, offices, truck services etc. and relates public facilities.
5.a	**Public/Semi-Public (Institutional & Offices)**	
5.1	Govt./Semi Govt./Public undertaking/local body office	A premise used for offices of the Union and State Governments, semi Government organizations, Public Sector Undertakings and Local Body Offices.
5.2	Office/corporate office	A premise used for office of commercial establishment, profit making organization
5.3	Professional/personal office	A premise where professional consultancy services are provided by an individual or a small group of professionals like Chartered Accountant, Lawyer, Doctor, Architect, Designer, Computer Programmer, Tour & Travel Agent etc.
5.4	Project development/management/ maintenance office	A premise used by a Real Estate Developer for project development, management office within the project site for a specified period with previous approval of the Authority.
5.5	Satellite/wireless/Telecommunication centre	A premise used for installation of a tower for communication purpose.
5.6	Guest house/lodging/boarding house	Guest House is a premise for housing the staff of Government, Semi- Government, Public Undertaking and Private Limited Company for short duration. Boarding house is a premise in which rooms are let out on a long-term basis as compared to hotels. Lodging House is a premise used for lodging of less than 50 persons.
5.7	Hostel	A premise in which rooms attached to “Institutions” or otherwise, are let out on a long-term basis.
5.8	Reformatory & Orphanage	Orphanage would mean a premise with facilities for boarding of children who are bereaved of parents. It may or may not have educational facilities. Reformatory would mean a premise with facilities for confinement and reform of offenders.
5.9	Old age home	A premise with commercial or non-commercial arrangement for long or short term stay of old people. It may include arrangement for recreation, general health, catering etc. which may be managed by an individual or an institution.
5.10	School for mentally challenged persons	A premise with facilities for education, treatment, reformation, and empowerment of mentally and/or physically challenged persons. It may be managed by an individual or institution on commercial or non-commercial basis.

Sl	Activities /Uses	Definition
5.11	Crèche & day care centre/ play & nursery school	A premise having nursery facilities for infants during daytime. The centre may be managed by an individual or institution on commercial or non-commercial basis.
5.12	Primary school	A premise having educational and playing facilities for students up to 5th standard.
5.13	Secondary school/ integrated residential school	Secondary school- A premise having educational and playing facilities for students from VI to X standard. It shall include existing middle schools, which are up to VIII standard for the purpose of this code. Integrated Residential School- A premise having educational and playing facilities up to XII standard. It shall have boarding facilities for students and may have residence for faculty.
5.14	Vocational Institute / training Institute / ITI	A premise with training facilities for short term courses for discipline, predatory to the employment in certain profession and trade. It shall be run by public or charitable institution on non-commercial basis. It includes training-cum-work centre.
5.15	Degree / PG college	A premise with educational and playing facilities for under-graduate and post-graduate courses under a university. It includes all professional disciplines
5.16	University	An institution for higher learning with teaching and research facilities. A university may exist without having any college connected with it but have assemblage of colleges affiliated to it.
5.17	Post office	A premise with facilities for postal communication for use by the public
5.18	Telephone exchange	A premise having facilities for central operation of telephone system fora designated area.
5.19	Police station	A premise having facilities for the offices of local police station.
5.2	Fire station	A premise with facilities for firefighting for a catchment area assigned to it. It may include residence of essential staff.
5.21	Police post	A premise having facilities for a local police post of a temporary nature or on small scale as compared to a police station
5.22	Library	A premise having large selection of books for reading and reference for general public or specific class
5.23	R & D centre	A premise having facilities for research and development for any specialized field.
5.24	Health centre/ family welfare centre	A premise having facilities for treatment of indoor and outdoor patients having up to 30 beds. The health centre may be managed by a public or a charitable institution on non-commercial basis. It includes family welfare centre
5.25	Trauma centre	A premise having medical facilities of specialized nature for providing instant treatment to patients under trauma.
5.26	Medical college/ hospital	Medical College: A premise where teaching, treatment, operation, and research & development related to human bodies is carried out. Hospital: A premise providing medical facilities of general or specialized nature for treatment of indoor and outdoor patients.
5.27	Clinic	A premise with facilities for treatment of outdoor patients by a doctor. In case of a polyclinic, it shall be managed by a group of doctors
5.28	Nursing home	A premise having medical facilities for indoor and outdoor patients having up to 30 beds. It shall be managed by a doctor on commercial basis.

Sl	Activities /Uses	Definition
5.29	Clinical laboratory / Diagnostic centre	A premise with facilities for carrying out various tests for confirmation of symptoms of a disease.
5.3	Veterinary hospital/ Dispensary	A premise offering medical and similar facilities for domestic pet care.
5.31	Health club/ Gym	A room or building equipped for indoor sports.
5.32	Dance/ Music/Art centre	A premise having facilities for imparting training and coaching for dance, music, and art.
5.33	Yoga/ Meditation centre	A premise having facilities for self-attainment, achieving higher quality of mind and body etc.
5.34	Religious building/centre	A premise dedicated to accommodations and service of God and other objects of religious nature. It may have different nomenclature in different religions like temple for all faiths, mosque, church, gurudwara, synagogue, ashram, bathing ghats, gaushala etc.
5.35	Community centre	A premise having an enclosed space for various social and cultural activities of a neighbourhood of 15000 population.
5.36	Convention centre/ conference centre/ Auditorium	A premise having all facilities for meeting, symposium, seminar etc. where a number of people from different organizations will be participating.
5.37	Socio-Cultural centre	A premise with facilities for activities of socio-cultural nature runs by a public, voluntary or individual on primarily non-commercial basis.
5.38	PCO Public call office	A premise with facilities to make phone calls from telephone to local, STD and international subscribers on payment basis.
5.39	Internet/Information centre	A premise used for internet system for communication purposes
5.40	Social welfare centre	A premise with facilities for welfare and promotion of community development. It shall be run by a public or charitable institution.
5.41	Crematorium/ Burial ground/ cremation	Cremation ground would mean a premise with facilities for performing last rites of dead bodies by burning. Burial ground would mean a premise with facilities for burying of dead bodies. Crematorium would mean a premise with facilities for disposing off dead bodies in an electrical/ electronic furnace
5.42	Night shelter (rain basera)	Premise with facilities for accommodation usually given without fees or a minimal fee for resting during night
5.43	Disaster management centre	Premise having facilities for carrying out studies and identify the potential risks related to any disasters
5.44	Metrological station	Premise having facility for meteorological observations, weather forecasting facility, seismology etc.
5.45	Banks	A premise for office to perform banking functions and operations.
5.46	ATM	A premise that allows customers to complete basic transactions without the aid of a branch representative or teller.
5.47	Milk Booth	A premise for retail sale of milk directly to consumers by manual or other means.
5.b	**Public & Semi-Public (Utilities/Facility)**	
5.48	Sewerage treatment plant	A premise with treatment facilities used for treatment of sewage.
5.49	Pumping station	A premise with a pumping station used for pumping sewage/ water on to a higher gradient.
5.5	Solid Waste Treatment Plant:	A premise where solid waste is collected, treated mechanically /Electrically and processed for reuse.
5.51	Sanitary landfill site/ solid waste treatment plant	A Premise where solid waste is disposed of for short or specific period.
5.52	Recycling plant	A premise with treatment facilities used for recycling of solid waste

Sl	Activities /Uses	Definition
5.53	Tube well/ Overhead tanks/ Underground tanks/ Renny wall	Tube well: A system to extract water from underground sources using mechanical means. It may consist of a room for operation and maintenance. Overhead tank: A premise having overhead tank for storage and supply of water to its neighbouring areas. It may or may not include a pump house. Underground tank: A premise having underground tank for storage and supply of water to its neighbouring areas. It may or may not include a pump house. Rainy well: A system to extract water from underground sources on the banks of a water body.
5.54	Water treatment plants	A premise with treatment facilities used for treatment of water
5.55	Electric sub station	A premise having electrical installation and transformation for distribution of power
5.56	Public toilets	A premise having latrines and urinals for use of public.
5.57	Transmission tower/ mobile tower as per YEIDA policy	A transmission tower or Cellular mobile tower which may be erected on ground or roof top of a building as per policy of YEIDA
5.58	Drinking water booths	Premise having water distribution kiosk for use of public
5.59	Water Works	An establishment for managing a water supply
5.60	Electric Post	An electric tower which is erected on the ground for distribution of power
5.61	Compost facility/ Unit	A **unit/premise which** is an organized waste-processing unit where **biodegradable (wet) waste**—such as kitchen waste, food waste, garden waste, and market waste—is biologically decomposed under controlled conditions to produce **compost**, a nutrient-rich organic manure used for agriculture, landscaping, and soil improvement
5.62	Material Recovery Facility	A **premise that** is a dedicated solid waste management infrastructure used for the **segregation, processing, and temporary storage of recyclable and recoverable materials** from municipal solid waste before they are sent for recycling or final disposal.
6	**Recreational Green**	
6.1	Park/Playground	Park: A premise used for recreational leisure activities. It may have on it related landscaping, parking facilities, public toilet, fencing etc. It will include synonyms like lawn, open space, green etc. Playground: A premise used for outdoor games. It may have on it landscaping, parking facilities, public toilet etc.
6.2	Multipurpose open spaces	Space / Area which is essentially open and can be used for multiple temporal functions.
6.3	Golf course/ Racecourse	Golf course: Area earmarked for playing golf sport which is essentially open along with minimal built space which supports the sports. Racecourse: Area earmarked for racing with minimal built space for supporting the race.
6.4	Stadium/ Sports training centre/Sports complex	Stadium: A premise for outdoor games with pavilion building and stadium structure to seat spectators including related facilities for players Sports training centre:

Sl	Activities /Uses	Definition
		A premise having facilities for training and coaching for different indoor and outdoor games including swimming. It shall also include centre for physical education Sports Complex: A premise for outdoor and indoor games with pavilion building, stadium, and related facilities.
6.5	Picnic spot	A premise within the tourist/ recreational centre which is used for short duration stay for recreational or holiday purpose.
6.6	Indoor stadium/ games hall	A premise for indoor stadium with play area and spectator seating including related facilities for players.
6.7	Planetarium	A premise with necessary facilities and equipment for studying planets
6.8	Aquarium	A premise with necessary facilities and equipment in which aquatic plants or animals are kept or displayed
6.9	Amusement/ Specialized/ Theme Park	Amusement Park and Theme Park are terms for a group of rides and other entertainment attractions assembled for the purpose of entertaining a large group of people. An Amusement Park is more elaborate than a simple park or playground, usually providing attractions meant to cater to children, teenagers, and adults.
6.10	Recreational club/ Swimming pool	Recreational Club-A premise for outdoor and indoor games with pavilion building. Swimming Pool- A premise with facilities for swimming and spectators seating which shall vary with standard and purpose.
6.11	Museum cum Auditorium	Museum means a premise with facilities for storage and exhibition of objects illustrating antiques, natural history, art etc... Auditorium means a premise having an enclosed space to seat audience and stage for various performance like concerts, play, recitals, functions etc.
6.12	Open air theatre	A premise having facilities for audience seating and a stage for performance open to sky.
6.13	National Memorials	A protected area that memorializes a historic person or event of national importance. The memorial need not be located on a site directly related to the subject.
6.14	Biodiversity Park	Premise having facility for conservation of flora and fauna.
6.15	Shooting Range	A shooting range, firing range, gun range or shooting ground is a specialized facility, venue, or field designed specifically for firearm usage qualifications, training, practice, or competitions.
6.16	Zoo, Wildlife/ Bird Santuary	A park where many kinds of wild animals are kept so that people can look at them and where they are bred, studied and protected
6.17	Tourist Facility Centre	Premise having facility for receiving tourists, guiding, and providing necessary information and support during their visit.
6.18	Sports City	A multipurpose sports and leisure facility
7	**Transportation**	
7.1	Open Parking	A premise open to sky used for parking of vehicles. The public parking lots may be run on commercial or non-commercial basis
7.2	Covered/ multi-level parking	A covered premise of one or more levels for parking of vehicles. It may be run on commercial or non-commercial basis
7.3	Taxi/Auto stand	A premise used for parking of intermediate public transport vehicles run on commercial basis. The parking lots may be run on commercial or non-commercial basis
7.4	Truck terminal/ transport Nagar	A premise for parking of trucks on short term or long-term basis. It may

Sl	Activities /Uses	Definition
		include agency offices, workshops, Dhaba's, spare part shops, god owns, petrol/ diesel filling stations and such other operational facilities
7.5	Bus depot/Bus terminal	Bus Depot: A premise used by a public transport agency or any other such agency for parking, maintenance, and repair of buses. This may or may not include a workshop Bus Terminal: A premise used by a public transport agency to park the buses for short
7.6	Bus stand/ Shelter	A Bus Stand or Bus Shelter is a designated location on a road away from carriageway to park buses for short time periods for embarkation and disembarkation of passengers
7.7	Motor garage/ service workshop	A premise for servicing and repair of automobiles
7.8	Traffic Park/ children traffic park/ training centre	A premise in the form of park with facilities for introducing and Educating public/ children about traffic and signals. The training centre shall have facilities for training of driving automobiles.
7.9	Loading/ Unloading facilities	The provision and management of loading and unloading facilities / spaces for pickup-delivery vehicles
7.10	Transport/ cargo booking centre	Place where (advance) arrangements made for a specific shipment of goods.
7.11	Container depot	Open storage area for shipping containers
7.12	Toll plaza	A premise/facility for collection of tolls for use of toll road. It may include office building for management of toll collection process.
7.13	Heli pad	Helipad (helicopter landing pad) is a landing area for helicopters. Usually a helipad does not have fuel and service facilities, and does not maintain a full-time air traffic controller
7.14	Railway Godown/ Railway Yard/ Siding Terminal	The whole system of tracks, the trains and the organization and people needed to operate them
7.15	Airport Strip	A runway without normal air base or airport facilities
7.16	Roads	Premise for travel in roads which are primarily paved
7.17	Personal Rail Transit	Personal Rapid Transit (PRT) is a fully automated, driverless, demand-responsive public transport system that uses small, lightweight vehicles (pods) operating on dedicated guideways to provide point-to-point travel without intermediate stops
7.18	High Speed Rail	High-Speed Rail (HSR) **is a** passenger rail transport system designed to operate at very high speeds on dedicated tracks**,** offering fast, reliable, and high-capacity inter-city connectivity between major urban centre
8.	**Agriculture**	
8.1	Orchard/ Plant nursery/ Social forestry	Orchard would mean a premise with a thick growth of fruit trees. It may also include garden with fruit trees. Plant nursery would mean a premise with facilities for rearing and sale of young plants. Forestry would mean a premise with thick natural flora including social forestry, which may have part natural flora and part man made flora.
8.2	Farmhouse	A dwelling house on a farm.
8.3	Dairy/ Poultry Farm	A premise with facilities for rearing and processing of dairy/ poultry products. It may have temporary structures for sheds of cows/ birds
8.4	Agriculture Equipment workshop/ Service Centre	A premise with facilities for servicing and repair of agricultural equipment's like tractor, trolley, harvesters etc.

Sl	Activities /Uses	Definition
8.5	Agriculture/ Horticulture/ Cash Crops	The science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products
8.6	Apiary/ Pisci Culture	A premise with facilities for rearing and processing of bee/ fisheries products. It may have temporary structures for sheds of birds/ fish

Table 12-2 Permissible Uses in a Land Use Zone

Sl	Activities /Uses	Permissible Use
	Residential	
1.1	Single House/ Plot/ Flat//Row Housing/Affordable Housing	Residence Support Facilities- Professional practice by the residents
1.2	Group Housing	As per Building Regulations Support Facilities- As per Building Regulations
1.3	Guard chaukidar residence	Guard/Chaukidar residence Permissible uses- Residence for Guard/ Chowkidar
	Commercial	
2.1	Retail shops/Platform	Retail Shop/Plat Form Permissible uses- Retail Shop, Hawkers' Platform
2.2	Repair shops	Permissible uses- Repair shop, spare parts shop
2.3	Personal Service shops	Permissible uses- Personal service shop
2.4	Vending booth	Permissible uses- Vending booth/kiosk
2.5	Showroom	Permissible uses- Showroom
2.6	Weekly market	Permissible uses- Weekly market, informal retail trade, kiosks, (all structures will be temporary and mobile, only for one day in a week, public conveniences temporary or permanent as per decision of the Authority)
2.7	Convenience shopping centre	Permissible uses- Retail, Repair and Personal Service shop, Showroom, Restaurant, Canteen, Food Court, Clinic and Polyclinic, Clinical Laboratory, Kiosk/ Vending booth, Bakery, Confectionary, Atta Chakki , Office, Bank, Coaching Centres/ Training Institutes, Informal Commercial units / platform, Multilevel Parking. Support Facilities- Guest House, Service Apartment, Health centre/ Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, religious centre, Barat Ghar, Exhibition Hall

Sl	Activities /Uses	Permissible Use
2.8	Local/sector level shopping centre	Permissible uses- Retail, Repair and Personal Service shops, Showroom, Restaurant, Canteen, Food Court, Clinic and Polyclinic, Clinical Laboratory, Kiosks, Vending booth, Bakery, Confectionary, Atta Chakki, Office, Bank, Coaching Centres/ Training Institutes, Informal commercial units / platform, Cinema/Multiplex, Multilevel Parking, Support Facilities- Guest House, Service Apartment, Banquet Hall, Exhibition Hall, Health Centre/Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, Religious centre, Convention/ Conference centre, Auditorium, Barat Ghar.
2.9	Shopping centre/ commercial centre/ shopping mall	Permissible uses- Retail shop, Showroom, Personal Service shop, Bakery, Confectionary, Food Court/ Canteen/ Restaurant, Office, Cinema/Multiplex, Drive in Cinema, Bank, Hotel, Guest House, Service Apartment, Banquet Hall/ Barat Ghar, Convention/ Conference centre, Auditorium, Art Gallery, Health Club/ Gym/ Spa, Guest House/ Lodging/ Boarding House, Vending Booth/ kiosk, Milk Booth, Clinic and Polyclinic, Clinical Lab, Internet/ Information Centre, Petrol / Diesel/ Gas filling Station, Coaching Centres/ Training Institutes, Fruit and Vegetable market, Informal Commercial unit/Platform, Multilevel Parking, Taxi/Auto/Rickshaw Stand, Bus Shelter, Transport /Cargo, Booking Centre, Residential (as per Building Regulations) Support Facilities- Repair Shop, Motor garage and Workshop, Automobile showroom/ Showroom cum service centre, Warehousing, Exhibition Hall /Exhibition Centre, Recreational Club/Swimming pool, Socio Cultural centre, Dance/ Music/ Art Centre, Yoga/ Meditation Centre, Museum, Indoor Stadium/ Games Hall, Amusement/ Specialised /Theme Park, Open Air Theatre, Library, R&D Centre, Religious Centre, Community Centre, Social Welfare Centre, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home
2.10	Informal commercial unit/platform	Permissible uses- Informal commercial unit / Platform
2.11	Wholesale market/Mandi	Permissible uses- Wholesale shop, Repair Shop, Bank, Automobile showroom/ Showroom cum service centre, Restaurant/Canteen/Food court, Coal/Wood/Building Material Market, Vegetable/ Fruit Market, Cold Storage, Warehouse/ Godown for Non-Hazardous items, Loading/ unloading facility, Vending Booth/kiosk, Multilevel Parking, Taxi/Auto Rickshaw/Rickshaw stand, Office, Weighbridge/ Dharam Kanta, Petrol / Diesel/ Gas filling Station, Cinema/Multiplex, Informal
2.12	Bakery/Confectionary/Atta Chakki	**Bakery:** A Bakery (also called baker's shop or bakehouse) is an establishment which produces or/and sells baked goods from an oven such as bread, pies, bagels etc. **Confectionary:**

Sl	Activities /Uses	Permissible Use
		A premise for retail sale of confectionary items directly to consumers with necessary storage. **Atta Chakki:** A premise where grinding of grain, spices and dried eatables are carried out.
2.13	Coal/wood/Building material market	Permissible uses- Wholesale shop, Repair Shop, Showroom, Bank, Automobile showroom/ Showroom cum service centre, Restaurant/ Canteen/Food court, Warehouse/ Godown for Non-Hazardous items, Loading/unloading facility, Truck Parking and other logistics, Vending Booth/ Kiosk, Multilevel Parking, Taxi/Auto Rickshaw /Rickshaw stand, Office, Weighbridge/Dharam Kanta, Petrol / Diesel/ Gas filling Station, Informal Commercial unit/Platform, Support Facilities- Guest House/Lodging/Boarding House, Retail Shop, Personal Service Shop, Health Centre/Family Welfare Centre / Dispensary, Nursing Home, Service apartment
2.14	Vegetable/Fruit market	Permissible uses- Wholesale shop, Retail Shop, Repair Shop, Personal Service Shop, Bank, Restaurant/Canteen/Food court, Warehouse/ Godown for Non-Hazardous items, Cold Storage, Gas Godown, Loading/unloading facility, Truck Parking and other logistics, Vending Booth/Kiosk, Multilevel Parking, Taxi/ Auto Rickshaw/ Rickshaw stand, Weighbridge/ Dharamkanta, Petrol / Diesel/ Gas filling Station, Informal Commercial unit/Platform Support Facilities-Guest House/Lodging/Boarding House, Showroom, Office, Health Centre/Family Welfare Centre/Dispensary, Nursing Home
2.15	Cold storage	Permissible uses- Cold storage, Loading/unloading facility, Truck Parking and other logistics, Support Facilities- Office, Canteen, Vending Booth/Kiosk,
2.16	Hotels	Permissible uses- Lodging facility, Restaurant /Canteen/ Food court, Dining hall, Cafeteria, Tourist Information centre, Convention Centre/Conference centre/ Auditorium, Seminar Hall, Exhibition Hall, Banquet Hall Laundry, Recreational Club/Swimming pool, Internet/Information Centre, Health Club/Gym/Spa, Discotheque, Yoga/ Meditation Centre, Multilevel Parking, Office, Support Facilities- Bank, Creche, Automobile showroom/ Showroom cum service centre, Retail Shop, Personal service shops, Showroom, Service Apartment, Health centre/Dispensary.
2.17	Service Apartment	Permissible uses- Guest Suite, Conference Facilities, Office, Support Facilities- Bank, Creche, Health Centre/Dispensary, Retail Shop, Personal Service Shop, Restaurant/Canteen/Food Court.
2.18	Restaurant/ Canteen/ Food Court	Permissible uses- Restaurant, Canteen, Food court, Banquet Hall, Vending Booth,

Sl	Activities /Uses	Permissible Use
		Support Facilities- Office, Bank extension counter
2.19	Cinema/Multiplex	Permissible uses- Cinema/ Multiplex, Retail Shop, Personal Service Shop, Showroom, Office, Restaurant, Food Court, Vending booth/ kiosk, Multilevel Parking Support Facilities- Bank, Gym/ Health club/ Spa, Taxi/Auto/Auto rickshaw stand,
2.20	Drive-in cinema	Permissible uses- Open air theatre, Drive in cinema, Open Air Restaurant, Support Facilities- Office related to cinema activity.
2.21	Exhibition hall/ Exhibition centre	Permissible uses- Exhibition Hall, Exhibition centre and art gallery, Library, Store/Godown facility, Auditorium, Multilevel Parking, Support Facilities- Office, Showroom, Dance/ Music/ Art Centre, Yoga/ Meditation Centre, Museum, Restaurant/Canteen/Food court, Vending Booth/Kiosk,
2.22	Banquet hall/ Barat Ghar	Permissible uses- Banquet Hall, Barat Ghar, Guest suite/room, Restaurant, Food court, Vending Booth/kiosk, Multilevel Parking Support Facilities- Retail shop, Personal service shop, Bank, Auto-rickshaw stand, Office
2.23	Electric Charging Station	Permissible uses- public electric charging station, Automobile Repair Shop, Automobile Service station, Support Facilities- Office, Retail shop/Departmental Store, Showroom.
2.24	Petrol pump/Diesel station	Permissible uses- Petrol/Diesel Pump/Fuel Station, Gas filling station, public electric charging station, Automobile Repair Shop, Automobile Service station, Support Facilities- Office, Retail shop/Departmental Store, Showroom.
2.25	Oil depot and LPG refilling plant	Permissible uses- Oil and Gas Depot, LPG refilling plant, Truck Parking Support Facilities- Booking Office
2.26	Gas godown	Permissible uses- Gas Godown, Truck Parking, Support Facilities-Booking Office,
2.27	Warehouses for non-hazardous items	Permissible uses- Store/Godown, Loading unloading facility, Truck Parking, Support Facilities- Booking Office,
2.28	Warehouses for hazardous items	Permissible uses- Store/Godown, Loading unloading facility, Control/Inspection room, Truck Parking, Support Facilities-

Sl	Activities /Uses	Permissible Use
		Booking Office,
2.29	Automobiles showroom/Automobile Showroom cum Service Station	Permissible uses- Automobile showroom, Licensed service centre, Parking, Retail shop (Spare Parts), Truck Parking, Support Facilities- Office, Retail shop, Kiosk/Vending Booth,
2.30	Weigh bridge/ Dharmkanta	Permissible Use Weigh Bridge, Dharmkanta, Vending Booth, Kiosk Support Facilities- Booking Office,
2.31	Storage Godown for Inflammable Items (LPG, Petrol, Diesel, Kerosene, Lubricants, Aviation Fuel etc)	Permissible uses- Store/Godown, Loading unloading facility, Control/Inspection room, Truck Parking, Support Facilities- Booking Office
2.32	Agriculture Produce Selling Market/ Grain Market	Permissible uses- Wholesale shop, Retail Shop, Repair Shop, Personal Service Shop, Bank, Restaurant/Canteen/Food court, Warehouse/ Godown for Non-Hazardous items, Cold Storage, Gas Godown, Loading/unloading facility, Truck Parking and other logistics, Vending Booth/Kiosk, Multilevel Parking, Taxi/ Auto Rickshaw/ Rickshaw stand, Weighbridge/ Dharamkanta, Petrol / Diesel/ Gas filling Station, Informal Commercial unit/PlatformSupport Facilities- Guest House/Lodging/Boarding House, Showroom, Office, Health Centre/Family Welfare Centre/Dispensary, Nursing Home
2.33	Junkyard	Permissible uses- Junkyard, Loading unloading facility, Truck Parking, Support Facilities- Booking Office, Office
2.34	Steel/ Cement/ Building Material Yard	Permissible uses Storage Yard, Loading Unloading Facility, Truck Parking, Weigh Bridge Support Facilities- Office, Storage Godowns
3	**Industrial**	
3.1	Service industries	Permissible uses- Service/Cottage Industry (Non-Hazardous, Non-polluting) as per stipulation of Industries department, residential unit Support Facilities- Crèche/ Day-care centre, Retail shop for the product manufactured, Storage
3.2	Cottage industries	Permissible uses- Service/Cottage Industry (Non-Hazardous, Non-polluting) as per stipulation of Industries department, residential unit Support Facilities- Crèche/ Day-care centre, Retail shop for the product manufactured, Storage

Sl	Activities /Uses	Permissible Use
3.3	Flatted factories	Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of Industries department, Canteen, Loading Unloading Facility, Truck parking, Multilevel Parking Support Facilities- Office, Bank, Gym, Storage, Taxi/Auto/Auto rickshaw stand, vending booth/kiosk, internet Centre, Creche and Day care centre.
3.4	Information/ software technology industry	Permissible uses- IT plots/buildings Support facilities a) Commercial Shops, Ares for storage, display and sale of merchandise, Cinema halls, Hotels, Restaurants, open eating kiosks b) Residential uses, Hostel, Guest house, Staff quarters c) Institutional Facilities- Waiting and transit areas, Areas designated for public utilities, Travel services, Telephone Exchange, Electric substation, water works, Export related facilities, Canteen/Restaurant, Creche and day care centre, operation and maintenance by specialized agencies, Training centre and library, Health Club and Gym for users/residents of IT and ITES, Games/entertainment room for users/residents of IT and ITES, Banking and Financial services, Business and Financial services, Business Centre/Conference facilities, Shops, Open eating kiosks. Note: The extent of support facilities under Commercial, Residential, and Institutional uses for different size if plots shall be decided by the Authority in the scheme from time to time.
3.5	Small/light industry	Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Multilevel Parking Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,
3.6	Industrial plot (specific industry type)	Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth, kiosk, Storage, Internet centre, Multilevel Parking Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,

Sl	Activities /Uses	Permissible Use
3.7	Industrial Plot (integrated use)	In Industrial plot having area more than 25 Acre, integrated use of Industrial, Commercial and Staff Housing shall be allowed, where industrial activity shall remain as a core activity with minimum 75% of permissible FAR. Staff Housing: - Dormitory, field hostel etc. other than Bangalow shall be allowed with maximum 12% of permissible FAR. Commercial: - Commercial activity shall be allowed with maximum 8% of permissible FAR. Support Facilities: - Support facilities shall be allowed as- waiting transit area, area designated for public utilities, travel services, telephone exchange, Electric sub-station, water works, Export related facilities, canteen, creche and day care centre, operations and maintenance by specialized agencies, training centre and library, health centre and Gym for end users if institutions. ATM services with 5% of permissible FAR.
3.8	Medium & Large-scale industry	Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Showroom for display/sale of industrial products Canteen, Creche and day-cares centre, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Internet centre, Multilevel Parking Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/Health club, Crèche and day-care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,
3.9	Film centre/ TV radio programme production centre	Permissible uses- Film Centre/TV Centre, Radio Programme Production Centre, Auditorium, Media Centre, Canteen, Library, Vending booth/ Kiosk Support Facilities- Office, Bank, counter Gym/ Health club, Creche and day-care centre, Taxi/Auto/Auto rickshaw stand.
3.10	Biotechnology/ Biotech Park	Permissible uses- BT plots/buildings/Incubators/labs/ Virtual information Centre/Patent Facilitating Centre/Central Analytical Instrumentation Facility/Bioprospecting facility/Micro propagation Facility/Medicinal Plant Extraction Facility/Fermentation Facility/Food processing/Testing facility/Bioinformatics Support facilities a) Commercial- Shops, Ares for storage, display and sale of merchandise, Cinema halls, Hotels, Restaurants, open eating kiosks b) Residential- Residential uses, Hostel, Guest house, Staff quarters c) Institutional Facilities-Waiting and transit areas, Areas designated for public utilities, Travel services, Telephone Exchange, Electric substation, Neutralization tank and guard pond for process effluents, water works, Compressed Air generators, Vacuum generators, Chemical Store building, central treatment facilities, Cold room, Export related facilities, Canteen/Restaurant, Creche and day care centre, operation and maintenance by specialized agencies,

Sl	Activities /Uses	Permissible Use
		Training centre and library, Health Club and Gym for users/residents of BT park, Games/entertainment room for users/residents of BT park, Banking and Financial services, Business and Financial services, Business Centre/Conference facilities, Shops, Open eating kiosks, Note: The extent of support facilities under Commercial, Residential and Institutional uses for different size if plots shall be decided by the Authority in the scheme from time to time.
3.11	Non- Polluting Agro based & food processing units	Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Multilevel Parking Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,
3.12	Milk Pasturing Plant	Permissible Use Milk Pasturing Plant
3.13	Milk Collection Centre	Permissible Use Milk Collection Centre
4	**Logistics**	
4.1	Freight complex/ Logistic Park	Permissible uses- Booking Office, Warehouse, Store/ Godown, Cold Storage, Space for Container Stocking, Truck Parking, Loading /Unloading facilities, Repair shop, Weighbridge, Vending Booth/Kiosk Support Facilities- Office, Petrol/Diesel/Gas filling station, Bank, Service Station, Restaurant/Canteen/ Food court,
5.a	**Public/Semi-Public -Institutional facilities**	
5.1	Govt./Semi Govt./Public undertaking/local body office	Govt./Semi Govt. /Public Undertaking/Local Body Office Permissible uses- Govt./Semi Govt./Public Undertaking/Local Body Office, Multilevel parking, Conference facilities, Seminar Hall, Support Facilities- Auditorium, International conference centre, Cultural and information centre, Stationary shop, Book store, Chemist store, Vending booth/Kiosk, Health Club / Gym, Bank extension counter, General store, Crèche, Indoor games halls, Dispensary, Internet centre, Library, Museum, Planetarium, R&D centres, Radio and television station, Canteen, Staff Housing, Guest house, Hostel, Transit Hostel.
5.2	Office/corporate office	Permissible uses- Office/Corporate office, Conference room, Seminal Hall, Multilevel Parking Support Facilities- Auditorium, International conference centre, Cultural and information centre, Stationary shop, Book store, Chemist store, Vending booth/Kiosk, Health Club / Gym, Bank extension counter, General store, Crèche, Indoor games halls, Dispensary, Internet centre, Library, Museum, Planetarium, R&D centres, Radio and

Sl	Activities /Uses	Permissible Use
		television station, Canteen, Staff Housing, Guest house, Hostel, Transit Hostel.
5.3	Professional/personal office	Permissible uses- Professional/Personal/Agent Office, Conference room, Support Facilities- Canteen, Bank extension counter
5.4	Project development/management/ maintenance office	Permissible uses- Project development/ Management/ Maintenance office, Support Facilities- Bank extension counter, Canteen,
5.5	Satellite/wireless/Telecommunication centre	Permissible uses- Satellite/Wireless/Telecommunication Centre, residential flat (for maintenance staff), Support Facilities- Research laboratory, Canteen
5.6	Guest house/lodging/boarding house	Guest house/lodging/boarding house Guest room/Suite, Conference Facilities, Banquet Hall, , Support Facilities- Office, Canteen, Retail Shop, Personal Service Shop, Bank, Crèche, Health Centre/Dispensary
5.7	Hostel	Permissible uses- Rooms/suites, dining facilities, Support Facilities- Office, Canteen, Personal service shops, retail store for daily needs, Indoor/ outdoor games facilities, Bank extension counter, Creche, Health Centre/Dispensary, Caretaker/ warden residence
5.8	Reformatory & Orphanage	Permissible uses- Reformatory and orphanage, Hostel. Support Facilities- Health centre/ Dispensary, Residence of Caretaker and maintenance staff, Personal service shop
5.9	Old age home	Permissible uses- Rooms/suites, Dining facilities, Canteen, Support Facilities- Guest Room, Bank, Retail shop, Personal service shop, Chemist, Health Centre/Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, religious centre, Bank extension counter, Vending booth/Kiosk
5.10	School for mentally challenged persons	Permissible uses- School for mentally, physically challenged, Hostel. Support Facilities- Health centre / Dispensary, Medicine shop, Residence of Caretaker, and maintenance staff, Personal service shop
5.11	Crèche & day care centre/ play & nursery school	Permissible uses- Crèche & Day Care Centre/Play & Nursery School, Support Facilities- Residence of caretaker and maintenance staff,

Sl	Activities /Uses	Permissible Use
5.12	Primary school	Permissible uses- Primary school, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel. Support Facilities- Retail shop for books and stationery, uniform, Bank extension counter, Staff housing, Vending booth/Kiosk
5.13	Secondary school/ integrated residential school	Permissible uses- Senior secondary school, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel Support Facilities- Retail shop for Books and Stationery, Uniform, Chemist; Bank extension counter, Vending booth/Kiosk, Staff housing
5.14	Vocational Institute / training Institute / ITI	Permissible uses- Vocational training centre, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel Support Facilities- Guest house, Transit hostel, Retail shops for Books and Stationery, Chemist, Fruits and vegetables, general store; Personal service shop, Repair shop, Vending booth/Kiosk, Bank extension counter, Staff housing
5.15	Degree / PG college	Permissible uses- Degree/P G/professional (MBA /Engg etc.) college, Canteen, Swimming pool, Library, Auditorium, Indoor games Hall, Hostel Support Facilities- Guest house, Transit hostel, Retail shop for Books and Stationary, Chemist, Fruits and vegetables, general store; Personal service shop, Repair shop, vending booth/Kiosk; Bank extension counter, Staff housing
5.16	University	Permissible uses- University, Educational Colleges, Canteen, Swimming pool, Indoor games Hall, Convention Centre, Exhibition Hall, Support Facilities- Auditorium, Indoor games Hall, Hostel, Guest house, Canteen, Retail shop for Books and Stationary, Chemist, Flowers, Fruits and vegetables, general store; Personal service shop, Repair shop, Vending booth/Kiosk, Bank extension counter, Staff housing, Cultural and information centre, International conference centre, internet café, Library, Museum, Planetarium, R&D Centre, Radio and Television station, Gym/ Health club, Guest House, Transit Hostel
5.17	Post office	Permissible uses- Post and Telegraph Office, Canteen,
5.18	Telephone exchange	Permissible uses- Telephone exchange/RLU/RSU, Support Facilities- Canteen, Bank Extension Counter, Staff Housing,
5.19	Police station	Permissible uses- Police Station, Support Facilities-

Sl	Activities /Uses	Permissible Use
		Canteen, Bank Extension Counter, Staff Housing,
5.2	Fire station	Permissible uses- Fire Station, Service workshop, Hostel/dormitory, , Support Facilities- Canteen, Bank extension counter, Staff Housing
5.21	Police post	Permissible uses- Police post Support Facilities- Canteen, Bank extension counter, Staff Housing
5.22	Library	Permissible uses- Library, Internet/information centre, Exhibition Hall, and art gallery, Support Facilities- Auditorium, Canteen, Staff housing, Bank extension counter,
5.23	R & D centre	Permissible uses- Research and Development Centre, internet/Information Centre, Hostel, Library, Support Facilities- Auditorium, Canteen, Staff housing, Guest House, Transit hostel, Bank Extension counter, Health/Gym
5.24	Health centre/ family welfare centre	Permissible uses- Health centre, Dispensary, Family welfare centre, Support Facilities- Canteen, Chemist shop, Vending Booth/kiosk, Office,
5.25	Trauma centre	Permissible uses Trauma centre, hostel, Support Facilities- Canteen, Vending Booth/ Kiosk, Bank extension counter, Chemist shop, Books/Stationery Shop, General Departmental store, Personal service Shop, Office, Staff Housing, Patient attendant accommodation, Gym,
5.26	Medical college/ hospital	Permissible uses- Hospital Support Facilities- Auditorium, Bank extension counter, Cultural and Information Centre, Chemist shop, Canteen, Books/Stationery /Flower Shop, Indoor Games Hall, International conference centre, Internet Centre, Library, Museum, Planetarium, R&D centre, Radio and Television Centre, General Departmental store, Personal service Shop, Office, Staff Housing, Patient attendant accommodation, Health club/Gym, Guest House, Hostel, Transit Hostel, Vending booth/kiosk
5.27	Clinic	Permissible uses- Clinic Support Facilities- Chemist shop
5.28	Nursing home	Permissible uses- Nursing Home, Clinical lab, Support Facilities-

Sl	Activities /Uses	Permissible Use
		Chemist shop, Vending booth/kiosk,
5.29	Clinical laboratory / Diagnostic centre	Permissible uses- Clinic laboratory, Support Facilities- Clinic, Chemist shop, Vending Booth/kiosk,
5.3	Veterinary hospital/ Dispensary	Permissible uses- Veterinary Hospital/Dispensary, Diagnostic Centre, Support Facilities- Canteen, Chemist shop, Staff Housing
5.31	Health club/ Gym	Permissible uses- Health club/Gym, Vending booth/Kiosk
5.32	Dance/ Music/Art centre	Permissible uses- Dance/Music/Art centre, Support Facilities- Auditorium, Guest House, Canteen, Vending booth/Kiosk, hostel
5.33	Yoga/ Meditation centre	Permissible uses- Yoga/Meditation centre, Library, Conference Facilities, , Hostel Support Facilities- Guest House, Auditorium, Canteen, Vending booth/Kiosk
5.34	Religious building/centre	Permissible uses- Religious Building/Centre, Yoga and Meditation Hall, Library, Ashram, Bathing Ghat, Gaushala, Dargah, Support Facilities- Residence for essential staff/ priest, Retail shop for flowers/ offerings, Charitable Dispensary, Dining Hall with kitchen,
5.35	Community centre	Permissible uses- Community centre/ Barat Ghar, Support Facilities- Indoor games, Library, Restaurant, Vending booth/kiosk, Guest rooms
5.36	Convention centre/ conference centre/ Auditorium	Permissible uses- Convention centre/Conference Centre/Auditorium, Exhibition Hall, Art Gallery, Internet/ information centre, Multilevel parking, Support Facilities- Restaurant, Hostel, Canteen, Library, Guest room, Bank extension counter, Caretaker and Maintenance Staff Housing,
5.37	Socio-Cultural centre	Permissible uses- Socio-cultural Centre, Exhibition Centre, Art Gallery, Dance/ Drama/Music Training centre, Swimming Pool, Multilevel parking, Support Facilities- Auditorium, Library, Museum, Canteen, Vending Booth/kiosk, Bank extension counter,
5.38	PCO Public call office	Permissible uses- PCO

Sl	Activities /Uses	Permissible Use
5.39	Internet/Information centre	Permissible uses- Internet/Information Centre Support Facilities- Bank Extension counter, Canteen, Library
5.40	Social welfare centre	Permissible uses- Social Welfare centre, Support Facilities- Canteen, Library, Vending Booth/kiosk, Bank extension counter
5.41	Crematorium/ Burial ground/ cremation	Permissible uses- Cremation/Burial ground/Crematorium, Support Facilities- Retail shop of wood, flowers and related material, Maintenance staff residence
5.42	Night shelter (rain basera)	Permissible uses- Night shelter Support facilities
5.43	Disaster management centre	Permissible uses- Disaster Management Centre Support Facilities Office, Canteen, Training Centre,
5.44	Metrological station	Permissible uses- Metrological station Support Facilities Office, Canteen, Training Centre,
5.45	Banks	Permissible Uses- Bank Support Activities Bank, Canteen
5.46	ATM	Permissible Uses- ATM
5.47	Milk Booth	Permissible uses- Rooms/suites, Dining facilities, Canteen, Support Facilities- Guest Room, Bank, Retail shop, Personal service shop, Chemist, Health Centre/Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, Religious centre, Bank extension counter, Vending booth/Kiosk
5.b	**Public/Semi-Public (Utilities/Facility)**	
5.48	Sewerage treatment plant	Permissible uses- Sewerage treatment plant/Pumping station, Support Facilities- Office, Maintenance staff residence
5.49	Pumping station	Permissible uses- Pumping Station Support Facilities- Office, Maintenance staff residence
5.5	Solid Waste Treatment Plant:	Permissible uses- Solid waste treatment plant Support Facilities- Office, Maintenance staff residence

Sl	Activities /Uses	Permissible Use
5.51	Sanitary landfill site/ solid waste treatment plant	Permissible uses- Sanitary landfill site Support Facilities- Office, Maintenance staff residence
5.52	Recycling plant	Permissible uses- Recycling Plant Support Facilities- Office, Maintenance staff residence
5.53	Compost Unit	Permissible uses- Composting Planting Plant Support Facilities- Office, Maintenance staff residence
5.54	Material Recovery Facility	Permissible uses- Material Recovery Plant Support Facilities- Office, Maintenance staff residence
5.53	Tube well/ Overhead tanks/ Underground tanks/ Renny wall	Permissible uses- Tube well/Overhead tanks/Underground tanks/Rainy well Support Facilities- Office, Maintenance staff residence
5.54	Water treatment plants	Permissible uses- Water Treatment Plant Support Facilities- Office, Maintenance staff residence
5.55	Electric sub station	Permissible uses- Electric sub-station Support Facilities- Office, Maintenance staff residence
5.56	Public toilets	Permissible uses- Public toilet
5.57	Transmission tower/ mobile tower as per YEIDA policy	Permissible uses- Transmission tower/Mobile tower as per Noida Policy
5.58	Drinking water booths	Permissible Use, Drinking Water Booth
5.59	Water Works	Permissible Use, Water Works
5.60	Electric Post	Permissible Use, Electric Post
6	**Recreational Green**	
6.1	Park/Playground	Permissible uses- Park, playground Support Facilities- Vending Booth/ Kiosk (max. 4 in number/ 40% depending on plot size)
6.2	Multipurpose open spaces	Permissible uses- Multipurpose open space Support Facilities- Vending Booth/ Kiosk

Sl	Activities /Uses	Permissible Use
6.3	Golf course/ Racecourse	Permissible uses- Golf Course, Racecourse, Swimming Pool, Indoor/ Outdoor games facilities, Multilevel Parking Support Facilities- Pro shop/ Sports goods shop, Bar/ Restaurants, Vending booth/ Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Golfers' temporary accommodation
6.4	Stadium/ Sports training centre/Sports complex	Permissible uses- Stadium/ Sports Training Centre/ Sports Complex, Indoor/ Outdoor games facilities, Hostel, Swimming pool, Multilevel parking Support Facilities- Staff housing, Grocery shop, Sports goods shop, Personal service shop, Canteen, Vending booth/Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Players' temporary accommodation
6.5	Picnic spot	Permissible uses- Picnic huts, Camping site, Park, playground, landscaped garden Support Facilities- Restaurant/Food court/ Canteen, Vending booth/ Kiosk, Caretaker Residence
6.6	Indoor stadium/ games hall	Permissible uses- Multipurpose Indoor Stadium, Indoor Games Hall, Indoor Games facilities, Swimming pool, Outdoor sports facilities, Park, Playground Support Facilities- Hostel, Canteen, Office related to sports facilities, Vending booth/ Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Players' temporary accommodation
6.7	Planetarium	Permissible uses- Planetarium Support Facilities- (20% of permissible FAR) Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence
6.8	Aquarium	Permissible uses- Aquarium Support Facilities- (20% of permissible FAR) Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence
6.9	Amusement/ Specialized/ Theme Park	Permissible uses- Amusement/ Specialised/ Theme Park, Playground Support Facilities- (30% of permissible FAR) Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence
6.10	Recreational club/ Swimming pool	Permissible uses- Recreational Club, Swimming Pool, Indoor/Outdoor games facilities, Park, playground Support Facilities-Restaurant/ Food court/ Canteen, Vending booth/ Kiosk, Caretaker residence, Library, Bank extension counter,

Sl	Activities /Uses	Permissible Use
6.11	Museum cum Auditorium	Permissible uses- Museum cum Auditorium/Conference Hall/ Art Exhibition Gallery, Open air theatre, Multi level Parking Support Facilities- (10% of permissible FAR) Canteen, office, Vending booth/ Kiosk, Caretaker residence, Library, Bank extension counter,
6.12	Open air theatre	Permissible - Open Air Theatre Support Facilities-Canteen, Office, Vending booth/ Kiosk, Caretak residence,
6.13	National Memorials	Permissible uses- National Memorial, Support Facilities -Canteen, Office, Card/gift shop, Vending booth/ Caretaker residence,
6.14	Biodiversity Park	Permissible Activity Biodiversity Park + support activity 10%
6.15	Shooting Range	Permissible Activity Shooting Range Support Activity- (10% of permissible FAR) Restaurants, Food Court, Canteen, Gift shop, Retail Shops, Caretaker Residence, Bank Extension Counter
6.16	Zoo, Wildlife/ Bird Sanctuary	Permissible uses- Zoo, Wildlife Sanctuary, Bird Sanctuary Support Facilities- (.0% of permissible FAR) Restaurants, Food Court, Canteen, Gift shop, Retail Shops, Caretaker Residence, Bank Extension Counter
6.17	Tourist Facility Centre	Permissible uses : Tourist facility Centre Support Facilities- Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence
6.18	Sports City	Permissible Uses: All kinds of Indoor/ Outdoor sports Facilities, Training centre, Swimming pool Complex- in 15% of the area Support Facilities- (in 15% of the area) Hostel, Staff housing, Guest house, Office, Retail shops of grocery, sports goods, Chemist, Restaurant/ Food court/ Canteen, Vending booth/ Kiosk, Caretaker residence, Library, Bank extension counter, Players' temporary accommodation Ground Coverage in green area 20%, FAR 0.40, + FAR 20% purchasable
7	**Transportation**	
7.1	Open Parking	Permissible uses- Open Parking, Vending booth/Kiosk
7.2	Covered/ multi-level parking	Permissible uses- Multi-level parking, Support Facilities- Office, Maintenance staff residence

Sl	Activities /Uses	Permissible Use
7.3	Taxi/Auto stand	Permissible uses- Taxi/Auto/Rickshaw Stand Support Facilities- Vending Booth/kiosk,
7.4	Truck terminal/ transport Nagar	Permissible uses- Truck parking, Service Garage, Spare parts shops, Repair shop, Transport Agencies offices and other related offices, Showroom, Weighbridge/ Dharamkanta, Storage Godowns, Multi-level parking, Support Facilities- Retail shop, showroom, Office, Restaurant, Hotel, Bank, Vending booth/kiosk
7.5	Bus depot/Bus terminal	Permissible uses- Bus Terminal, Support Facilities- Office, Canteen
7.6	Bus stand/ Shelter	Permissible uses- Bus stand/ Shelter
7.7	Motor garage/ service workshop	Permissible uses- Motor Garage/Service Garage/Workshop, Service Station Support Facilities- Automobile showroom, Spare parts shop, office, Vending Booth/kiosk
7.8	Traffic Park/ children traffic park/ training centre	Permissible uses- Traffic Park/Children Traffic Park/Training Centre, Support Facilities- Restaurant, Vending Booth/kiosk
7.9	Loading/ Unloading facilities	Permissible uses- Loading/Unloading Facilities/Space, Weighbridge, Support Facilities- Vending booth/kiosk
7.10	Transport/ cargo booking centre	Permissible uses- Transport/Cargo booking office, Warehousing/Godown, Truck Parking Support Facilities- Office, Vending booth/kiosk, Canteen,
7.11	Container depot	Permissible uses- Storage of Containers, Weighbridge, Truck parking, Warehousing/Storage Godown, Office Support Facilities- Vending booth/kiosk, Canteen,
7.12	Toll plaza	Permissible uses- Toll Plaza, Maintenance office Support Facilities- Office
7.13	Heli pad	Permissible uses- Helipad, Office, Waiting Area,
7.14	Railway Godown/ Railway Yard/ Siding Terminal	Permissible uses- Railway, Godown, Railway Yard, Siding Terminal
7.15	Airport Strip	Permissible uses- Airport Strip
7.16	Roads	Permissible Uses -Roads, Green belt, footpath
7.17	PRT Corridor	Permissible uses-PRT bays, track, waiting area, e charging points, booking office and kiosk. Support facilities-Urban greens, small shops, handicraft zones, tourist information centres, parking
7.18	High Speed rail	Permissible uses-HSR track with RoW, Green Buffer, Utility infrastructure, station, platforms Support facilities-Offices, booking counters, small commercial units
8.	**Agriculture**	
8.1	Orchard/ Plant nursery/ Social forestry	Permissible uses- Orchard/ Plant nursery/ Social forestry Support Facilities- Shop selling seeds, Plants, gardening equipment, vending booth/ Kiosk, Caretaker residence (all structures shall be temporary in nature)
8.2	Farmhouse	Permissible uses- Farmhouse Support Facilities- Caretaker residence

Sl	Activities /Uses	Permissible Use
8.3	Dairy/ Poultry Farm	Permissible uses- Dairy Farm, Poultry Farm Support Facilities- Caretaker residence
8.4	Agriculture Equipment workshop/ Service Centre	Permissible uses- Agriculture Equipment workshop/ service centre Support Facilities- Spare parts shop, Repair shop
8.5	Agriculture/ Horticulture/ Cash Crops	Permissible uses- Agriculture, Horticulture, Cash Crops Support Facilities- Caretaker residence
8.6	Apiary/ Pisci Culture	Permissible uses- Fish Farm, Bee Farm Support Facilities- Caretaker residence

12.7. Provision For Existing Structures /Establishments

Any existing establishment running within the proposed urban centre in any zone other than its core landuse zone may be allowed to continue. However, the Authority/State Govt./Central Govt. or its departments/agencies can take appropriate decision/actions as per law with regards to existing structures in the ROW of existing roads and ROW of the proposed Master Plan Roads/Railway/Other Transport Mode. Moreover, the expansion or reconstruction more than the existing area shall be governed as per the permissibility of that activity as per zoning regulations.

Further, existing structures used for non-conforming uses, that are not permissible as per zoning regulations may be maintained, repaired, or renovated without changing, extending, expanding its external dimensions as per the detailed policy on the same that shall be prepared by Authority for regulating such uses from the date of Master Plan coming into force.

12.8. Sub Division of Use Zones And Sub Division Regulation

The Subdivision of land with a view to prepare a layout plan is done for a sector or area, which is designated primarily for a specific use zone already specified earlier as per the Master Plan. The objective of regulations detailed herein is to guide the preparation of layout plans for use areas. These regulations include norms for provisions of circulation system, open spaces, and facilities. The service plans corresponding to these layout plans for provisions of physical infrastructure like water supply, sewerage, drainage, power, telecom, gas and solid waste management etc. shall conform to the norms framed by the Authority from time to time. Please refer **Annexure 1 for the detailed matrix on Use Premises Permissible in Use Zones.**

13 MASTER PLAN IMPLEMENTATION & PHASING

13.1 Legal Framework for Plan Preparation

The Master Plan for Agra Urban Centre- 2041 as identified in Master Plan (Phase-2) – 2031 for Yamuna Expressway Industrial Development Area is being prepared within the overall policy framework laid down in the following: -

- The UP Industrial Area Development Act 1976
- The State Policy for Development of Yamuna Expressway Industrial Development Authority 2007 issued vides G.O(Government Order) no. 4636/77-4-07-486 N/07 dated 29/12/2007. The relevant extracts of the policy regarding preparation of Plan are as follows:

"2.1 ताज एक्सप्रेस–वे के दोनों तरफ स्थित क्षेत्रों के सुनियोजित विकास हेतु निम्न बातों का होना आवश्यक है :–

अ. ताज एक्सप्रेस–वे प्राधिकरण के रेग्यूलेटेड एरिया को बढ़ाया जाना।

ब. बढ़ी हुयी एरिया में विभिन्न सम्भावित विकास कार्यक्रमों की पहचान किया जाना।

स. बढ़े हुये क्षेत्र के लिये मास्टर प्लान का तैयार किया जाना।

ड. विकास हेतु धन की व्यवस्था किया जना।

2.2 नोयडा और ग्रेटर नोयडा के बीच में एक्सप्रेस–वे पूर्व में संचालित है और यह नयी एक्सप्रेस वे नोयडा इंड (जीरो प्वांइट) जो एक्सप्रेस–वे से 20 किलोमीटर दूर से शुरू होकर लगभग 165 किलोमीटर दूर स्थित आगरा तक है।

2.3 टी.ई.ए. उस क्षेत्र का निर्धारण करेगा जो इस सुनियोजित विकास प्लान में शामिल होगें और उनके लिये मास्टर प्लान बनायेगा और यह प्रक्रिया विभिन्न चरणों में तैयार की जायेगी।

2.4 टी.ई.ए. के द्वारा जो मास्टर प्लान बनाया जायेगा वह राज्य की विकास नीति के ढांचे के अनुकूल होगी और निम्नलिखित उद्देश्यों की पूर्ति करेगा।

अ. क्षेत्र के एवं इसके अन्तर्गत आने वाले पर्यावरण का सुगठित विकास किया जाना।

ब. जो स्थल जिस कार्य के लिये अनुकूल है उनको प्रोत्साहित किया जाना और लोगों में अच्छा कार्य करने तथा अच्छा जीवन बिताने का वातावरण पैदा करना।

2.5 मास्टर प्लान में विभिन्न क्षेत्रों की पहचान की जायेगी। जहां पर विभिन्न उद्देश्यों जैसे औद्योगिक, आवासीय, वाणिज्यिक, संस्थागत, सरकारी अर्द्धसरकारी क्रिया कलापों जैसे भौतिक मूलभूत सुविधाओं के साथ–साथ यातायात, विद्युत, जलापूर्ति, जलनिकासी, कूड़ाकरकट के निस्तारण आदि का विकास किया जाना हो। मास्टर प्लान में मनोरंजन की सुविधाओं व दूरभाष बाजार, नीति संरक्षण, अग्नि, सुरक्षा, दुग्ध वितरण, पेट्रोल स्टेशन व अन्य सम्बद्ध सेवाओं के विकास चरणबद्ध तरीके से किये जाने का प्राविधान भी होगा।

2.6 उच्च गुणवत्ता एवं त्वरित विकास की विकास गतिविधियां सुनिश्चित करने हेतु ताज औद्योगिक विकास प्राधिकरण, समन्वयक संस्था (नोडल एजेंसी) होगी। विकास गतिविधियों को मोटे तौर पर निम्नलिखित श्रेणी में विभाजित किया जायेगा।

(अ) भूमि का विकास– 1000 हेक्टेयर से कम
(ब) भूमि का विकास– 1000 हेक्टेयर अथवा इससे अधिक
उपर्युक्त (ब) में पड़ने वाला क्षेत्र विशिष्ट विकास परिक्षेत्र (Special Development Zone) की श्रेणी में वर्गीकृत किया जायेगा।

2.7 मास्टर प्लान तैयार करने के अतिरिक्त अन्य कार्यों के साथ–साथ ताज औद्योगिक विकास प्राधिकरण निम्नलिखित के लिये भी जिम्मेदार होगा:–

(द) मांग एवं स्थानीय आवश्यकता को देखते हुए 1000 हेक्टेयर से कम के भूखण्डों का विकास (आन्तरिक विकास सहित) किया जाना। उक्त विकास छोटे साइज के व्यक्तिगत आवास/सामूहिक आवास/अन्य उद्देश्यों व आवासीय या अनावासीय उद्देश्यों के लिये पूर्व निर्धारित दरों पर या बोली के आधार पर जैसा कि ताज औद्योगिक विकास प्राधिकरण उचित समझे, ताज औद्योगिक विकास प्राधिकरण द्वारा समय–समय पर निर्धारित/आवंटित किया जायेगा।

- Yamuna Expressway Industrial Development Area (Plan preparation and finalization) Regulation 2011. The relevant extracts for preparation of the Plan area as follows-

3 (1)– प्राधिकरण यथासंभव शीघ्र नगर योजना एवं नागरिक सर्वेक्षण करेंगा और औद्योगिक विकास क्षेत्र के लिए योजना का प्रारूप तैयार करेंगा।

(2) योजना के प्रारूप में ––

(क) विद्यमान विभिन्न सेक्टर्स का उल्लेख एवं वर्णन किया जायेगा जिसमें विकास क्षेत्र अथवा इसके भाग को विकास के उद्देश्य से विभाजित कियाजाना हो तथा प्रत्येक सेक्टर में भूमि का उपयोग किये जाने की रीति का उल्लेख किया जायेगा।

(ख) विभिन्न भू–उपयोग के अधीन भूमि के क्षेत्रफल का उल्लेख किया जायेगा।

(ग) निम्नलिखित का वर्णन एवं उल्लेख होगा।

(एक) विद्यमान सड़के।
(दो) परिवहन एवं संचार की, जिसमें रेल और हवाई–अड्डा भी सम्मिलित है, विद्यमान रूप–रेखाएं।

(3) योजना के प्रारूप में निम्नखित का उल्लेख हो सकता है––
(क) विद्यमान सार्वजनिक सुविधाएं और भौतिक विशिष्टताएं यथा नदियां एवं जल निकाय आदि।
(ख) विनियम 4 में विनिर्दिष्ट सभी विषय, उनमें से कोई विषय।

(4) योजना के प्रारूप में ऐसे मानचित्र, डाईग्राम, चार्ट–रिपोर्ट और किसी व्याख्यात्मक या वर्णनात्मक प्रकृति के ऐसे अन्य लिखित विषय होगे जो औद्योगिक विकास क्षेत्र के सम्पूर्ण या किसी भाग के विकास से संबन्धित हो,

(5) योजना के प्रारूप के भाग को सृष्ट करने वाले लिखित मामलों में मुख्य विकास संबन्धी विशिष्टताओं का ऐसा सारांश और ऐसा वर्णनात्मक मामला भी सम्मिलित होगा, जैसाकि प्राधिकरण मानचित्रों, चार्टो, डाईग्रामो द्वारा और अन्य दस्तावेंजो द्वारा संसूचित प्रस्तावों को समझाने या स्पष्ट करने के लिए आवश्यक समझे।

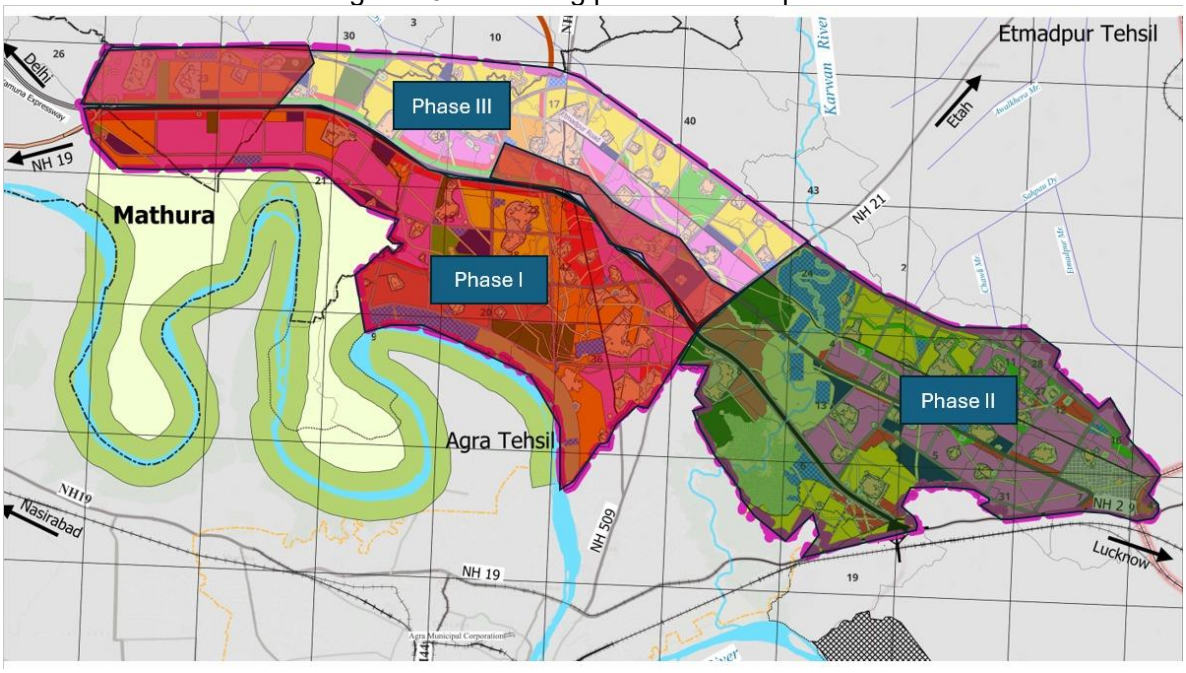
(6) विद्यमान भू–उपयोग की कोई योजना, में विभिन्न प्रयोजनों के लिए भूमि के वांछित उपयोग को प्रस्तावित करने की योजना प्रारूप का भाग भी होगी।''

Development of AUC is likely to take many years to achieve its vision. Planned development and infrastructure is necessary to minimize uncertainty and improve the economic feasibility of development. The pace, location, and type of development in the plan area will be driven by the Yamuna Expressway Industrial Development Authority based on market demand, vision, regulatory framework, infrastructure development and fiscal impact. The development works in the entire area will be completed by 2041 based on the financial budget and convenience of the development authority. The decision from the development authority regarding the same will be final.

13.2 Project Phasing and Implementation Strategy

For the effective implementation of Master Plan, the area is planned to be developed in three phases.

Figure 13-1: Phasing plan for Development



Source: Consultant

Phase-1 (5977.45 Ha), the land use distribution is categorized into several primary classes, with **Industry (Multiple Use Industry)** occupying the largest single area at **1350.72**.ha Residential and Transportation follow closely as major land users, with total areas of **1009.24 ha** and **1011.47** ha respectively; the transportation sector is notably diverse, spanning various road widths, MMTH, and an RRTS Corridor. Other significant allocations include Mixed Use (754.28 ha), Green spaces (581.54 ha), and PSP (452.28 ha), while Tourism, Commercial, and Waterbodies (Canal and Pond) make up the remaining footprint. Overall, the phase shows a balanced focus on industrial growth, comprehensive infrastructure, and residential expansion.

Phase- 1		
Landuse	**Sub Landuse**	**Area**
Residential	Abadi Extension	432.90

	Existing Abadi	314.29
	Proposed Residential	262.05
		1009.24
Commercial		**344.04**
Industry	Multiple Use Industry	**1350.72**
Mixed Use		**754.28**
PSP	Institution	209.15
	Utility	243.13
		452.28
Transportation	Existing Road	144.66
	Road 100M	72.72
	Road 18M	84.78
	Road 45M	68.20
	Road 60M	414.55
	Road 80M	93.51
	MMTH	52.38
	RRTS Corridor	80.66
		1011.47
Tourism		453.69
Green	Green Belt	285.00
	Organized Green	133.71
	Recreational Green	162.83
		581.54
Waterbodies	Canal	4.86
	Pond	15.33
		20.19

Source: Consultant Analysis

The land use distribution for **Phase-2** (**5619.17 Ha)** prioritized towards industrial development and environmental preservation. The **Green** category constitutes the largest land allocation at **1413.03 Ha**, driven largely by an extensive Green Belt and forested areas. This is closely followed by **Industry**, which covers **1299.27 Ha** dedicated to Multiple Use Industry. **Residential** development also remains a primary focus, totaling **1104.58 Ha**. Infrastructure and essential services are well-represented, with **Transportation** accounting for **736.26 Ha** through a variety of road networks, supplemented by a **158.84 Ha allocated for Logistic Hub (MMLH)**. The remaining land is distributed among:

- **PSP (Public and Semi-Public)**: 458.17 Ha
- **Tourism**: 224.77 Ha
- **Commercial**: 182.67 Ha
- **Waterbodies**: 41.58 Ha, which includes canals, ponds, and river areas.

Overall, the Phase-2 plan balances significant industrial and residential expansion with a strong emphasis on maintaining green corridors and logistics.

Table 13-1 Land use Category wise Area of Phase-2

Total Phase- 2 Area- 5619.17 Ha		
Land use	**Sub Land use**	**Area (Ha)**
Residential	Abadi Extension	243.07

	Existing Abadi	220.61
	Proposed Residential	640.90
		1104.58
Commercial		**182.67**
Industry	Multiple Use Industry	**1299.27**
Mixed Use		
PSP	Institution	136.85
	Utility	321.32
		458.17
Transportation	Existing Road	159.47
	Road 100M	118.01
	Road 18M	100.07
	Road 45M	4.79
	Road 60M	185.63
	Road 80M	168.28
		736.26
Logistic Hub	MMLH	**158.84**
Tourism		**224.77**
Green	Organized Green	116.42
	Recreational Green	237.38
	Forest	306.47
	Green Belt	752.76
		1413.03
Waterbodies	Canal	5.99
	Pond	17.06
	Proposed Pond	0.24
	River	18.29
		41.58

Source: Consultant Analysis

Phase-3 (2884.02 Ha) indicates a shift toward **Residential** land use development which is about **1409.24 Ha**. **Proposed Residential** area is about **984.12 units** Ha, alongside existing Abadi and extensions. Supporting this residential core is a robust **Transportation** network covering **456.60 Ha**, which includes various road hierarchies and a proposed **RRTS Corridor**. **Industry** and **Green** spaces also represent significant portions of the phase, accounting for **369.19 Ha** and **356.73 Ha** respectively. The remaining land is allocated to:

- **Commercial**: 118.40 Ha
- **PSP (Public and Semi-Public)**: 100.83 Ha for institutions and utilities.
- **Mixed Use**: 57.16 Ha
- **Waterbodies**: 15.88 Ha consisting of canals and ponds.

Overall, Phase-3 prioritizes housing and connectivity, with a more moderate focus on industrial and recreational zones compared to previous phases.

Table 13-2 Land use Category wise Area of Phase-3

Total Phase- 3 Area- 2884.02 Ha		
Land use	**Sub Land use**	**Area (Ha)**
Residential	Abadi Extension	199.28

	Existing Abadi	225.85
	Proposed Residential	984.12
		1409.24
Commercial		**118.40**
Mixed Use		**57.16**
Industry	Multiple Use Industry	**369.19**
PSP	Institution	64.84
	Utility	35.99
		100.83
Green	Organized Green	169.99
	Green Belt	126.86
	Recreational Green	59.88
		356.73
Transportation	Existing Road	84.44
	Road 100M	7.43
	Road 18M	44.38
	Road 45M	41.98
	Road 60M	121.50
	Road 80M	92.25
	RRTS Corridor	64.64
		456.60
Waterbodies	Canal	3.76
	Pond	12.12
		15.88

Source: Consultant Analysis

Implementation strategy for identified projects under Transport, Industries, Physical & Social Infrastructure are detailed in the section below.

13.2.1 Transport

A robust capital investment plan for transport sector projects in Agra Urban Centre is essential to ensure seamless mobility and drive overall economic growth. In the initial phase, the focus is on establishing core transportation infrastructure. This includes the construction of high-quality access roads, expressways, and interchanges that connect the industrial city to major regional hubs and logistics nodes. Investments are also earmarked for developing key components like bridges, underpasses, and dedicated freight corridors to facilitate efficient movement of goods and reduce congestion. Detailed engineering designs and feasibility studies help determine the appropriate alignment, materials, and technologies to be used, ensuring that the infrastructure is both durable and adaptable to future demands.

Subsequent phases target multimodal integration. Here, the plan incorporates elements such as light rail transit (LRT) or at-grade neo metro systems for passenger transport, enhanced bus networks, and provisions for non-motorized transport options like dedicated bicycle lanes and pedestrian pathways. Advanced technologies, including Intelligent Transport Systems (ITS) and digital traffic management solutions, are integrated to optimize traffic flow and improve overall safety. These systems not only boost operational efficiency but also contribute to a reduction in carbon emissions, supporting the city's sustainability objectives.

Financing the transport projects involves a diversified funding strategy. This may include public funding through government grants and subsidies, private investments via Public-Private Partnerships (PPPs), and debt financing from both national and international financial institutions. A phased financing model is typically adopted, aligning capital deployment with project milestones to mitigate risks and manage cash flow effectively. Additionally, the use of innovative instruments such as green bonds can attract environmentally conscious investors and further support the sustainable development agenda.

Risk management is an integral component of the capital investment plan. Comprehensive risk assessments are carried out to identify potential challenges—including cost overruns, regulatory delays, and environmental impacts—and to develop mitigation strategies. Establishing a dedicated project management office (PMO) ensures continuous monitoring, performance evaluation, and timely course corrections throughout the project lifecycle.

Table 14-1 Transport Sector Projects

SL	PROJECTS	Development Model
1	Development of New Roads	Government
2	Improvement of Existing Roads	Government
3	Development of Interchanges	Government
4	Development of Multimodal Transport Hub	PPP
5	Development of Light Rail Transit Network	PPP
6	Development of City Bus Transport System within Agra Urban Centre	Government
7	IPT stops	Government
8	E-charging stations	PPP
9	Metro connectivity from Agra	Government
10	Development of PRT	Govt/ PPP
11	High Speed Rail from NIAL	PPP
	TOTAL	

13.2.2 Industry

A comprehensive capital investment plan for land acquisition and development of industrial sites in a greenfield industrial city lays the foundation for sustainable economic growth and efficient logistics. This plan is structured to ensure strategic acquisition, development of essential infrastructure, and integrated planning for a vibrant industrial ecosystem.

The first phase focuses on strategic land acquisition. This involves identifying and procuring contiguous, cost-effective land parcels that are ideally located along major transport corridors. Due diligence is paramount—ensuring clear titles, compliance with local regulations, and environmental assessments are completed. By consolidating land early, the authority can achieve economies of scale and facilitate master planning for mixed-use industrial, commercial, and ancillary developments.

Following acquisition, the plan moves to **site development and infrastructure investment**. This phase includes clearing, grading, and preparing the site, as well as constructing essential facilities such as internal road networks, utilities (power, water, sewage), and digital connectivity infrastructure. The development plan incorporates sustainable design principles—for instance, green building practices, efficient energy use, and provisions for future expansion. Investment in high-quality infrastructure not only enhances operational efficiency but also boosts the overall attractiveness of the industrial zone to investors and businesses.

The financing strategy for these projects is diversified. Capital is sourced from a mix of public funding—such as government grants, subsidies, and infrastructure bonds—and private investments, often through Public-Private Partnerships (PPPs). Additionally, debt financing from national banks or international financial institutions can be leveraged, with a phased investment model that aligns cash flow with project milestones. This staged approach minimizes risk exposure and ensures that investment is allocated efficiently across different development stages.

Table 14-2 Industry Sector Projects

SL	PROJECTS	Development Model
1	Development of Multi Modal Logistic Hub	Government
2	Development of Industrial Sites	Government

13.2.3 Physical Infrastructure

Table 14-3: Physical Infrastructure Projects

SL.NO	PROJECTS	Development Model
1	PHE WORKS	Government
	WATER SUPPLY & RECYCLE NETWORK	
	SEWAGE SYSTEM	
	STORME WATER MANAGEMENT	
	WASTE MANAGEMENT SYSTEM	
2	ELECTRICAL WORKS	Government
3	KARWAN RIVER RESTORATION	Government
4	LANDSCAPE WITH HORTICULTURE WORK	Government
5	HORTICULTURE WORK	Government

Physical Infrastructure is to be developed in 3 Phases. First phase will encompass development of already rapidly urbanizing area along NH 509 and NH 21. Phase 2 will extend over the next 5 years to the North of Expressway. Final Phase will develop the Easternmost and Westernmost (extreme) parts of the site.

13.2.4 Social Infrastructure

In the initial phase, the plan focuses on establishing core facilities that are vital for the well-being of the community. This includes constructing primary schools, basic healthcare clinics, and community centres in proximity to residential clusters. These facilities are designed with scalability in mind so that as the population grows, additional services and expanded capacities can be seamlessly integrated. Emphasis is placed on sustainable design practices, such as energy-efficient buildings, use of renewable materials, and incorporation of green spaces, ensuring that the infrastructure is both environmentally responsible and cost-effective over its lifecycle.

A capital investment plan for the development of social infrastructure in Agra Urban Centre is a critical component that underpins long-term economic growth, quality of life, and community cohesion. Such a plan encompasses the design, financing, and phased implementation of essential social facilities—ranging from educational institutions and healthcare centres to recreational spaces and community services—that not only meet immediate needs but also anticipate future expansion.

Table 14-4 Social Infrastructure Projects

SL	PROJECTS	Development Model
1	Development of Educational Infrastructure	
	Kinder garden & Pre-primary schools	Government
	Primary Schools	Government/ PPP
	Senior Secondary Schools	Government/ PPP
	School for Specially Abled	Government
2	Development of Healthcare Facilities	
	Community Health Centre	Government
	Referral Hospital	Government
	General Hospital	Government
	Speciality Hospital	PPP
	Primary Health Centre	Government
3	Development of Community Facilities	
	Anganwadi	Government
	Community Room	Government
	Community hall, mangal karyayala, barat ghar/ library	Government
	Music, dance and drama centre	PPP
	Meditation and spiritual Centre	PPP

14 ANNEXURES

Annexure No.	Contents
1	Use Premises Permissible in Use Zones
2	AUC Base Map
3	AUC Proposed Land Use Map
4	AUC Proposed Road Network Map

ANNEXURE 1

Use Premises Permissible in Use Zones

	Not Permissible
	With Special Permission of the Board
	Permissible Use

Sr No	Conditions
a	In planned designated commercial plot area.
b	Only for the products of industry /factory.
c	Only for 30m or more wide roads earmarked by YEIDA.
d	Planned and designated plot.
e	Planned Commercial or Facility or Institutional plot
f	The Authority may allow maximum 30% of permissible FAR for residential activities in the commercial plots of 4 hectare and above size, but the rate applicable in the total plot shall be that of the commercial land
g	Only on 24 meter or more wide roads earmarked by YEIDA or 24 meter wide Existing Road.

Sr No	Notes
1	These zoning regulations shall be applicable for planning of land uses at Master Planning/ Sector level.
2	The Authority may decide the activities to be permitted in Special Projects.
3	The authority may decide the activities to be permitted within Abadi Settlements area or abadi Extension Area.
4	Activities already permitted in the various schemes shall continue as per the terms & conditions specified in the scheme.
5	Commercial activities in other land uses shall be permitted based on additional reserve price as decided from time to time by the authority.

6	Non-residential activities in the Village Abadi/ Abadi extension shall be permitted only on 12.0 m or wider roads.
7	In SDZ core and non-core activities shall be permitted as per SDZ policy.
8	No activity other than incidental to riverfront development land use (to be decided by the authority) shall be permissible in river front development land use
9	Any government scheme or activity approved or decided by State Government shall be allowed in notified Area of Authority.
10	Electric Sub Station/ water works/ other essential utilities shall be developed as per their controlled designs.
11	The Authority may alter or determine the Master plan Road Alignment partially based on ground feasibility/survey.

Sr No	Activity/ Use	Residential	Village Abadi Area	Abadi Ext. Area	Commerce	Industrial -Multi Us	Mixed Use	Tourism Zone	Institutional	Utility/Facility	Transportation	Logistics	Green Belt	Organised Greens	Recreational Green	Forest	Water Bodies
1	**Residential**																
1.1	Single House/ Plot/ Flat				f												
1.2	Group Housing				f			d									
1.3	Guard chaukidar residence																
2	**Commercial**																
2.1	Retail shops/Platform	a				a			a	a	a						
2.2	Repair shops	a				a											
2.3	Personal Service sho	a								a							
2.4	Vending booth	a				a			a								
2.5	Showroo m	a				b					a	a					
2.6	Weekly market	c	c	c	c	c	c	c			c						

2.7	Convenience shoppin	a				a			a		a							
2.8	Local/Sector level Sh	a				a			a						a			
2.9	Shopping centre/ com	a				a		d										
2-10	Informal commerci al	a				a		d										
2.11	Wholesale market/M				a													
2.12	Bakery/Confectionar y	a																
2.13	Coal/wood / Building																	
2.14	Vegetable/ Fruit mark	a																
2.15	Cold Storage																	
2.16	Hotels					a			a	a					a			
2.17	Service Apartment								a	a								
2.18	Restaurant/ Canteen/	a																
2.19	Cinema/ Multiplex	a				a									a			
2.20	Drive-in cinema																	
2.21	Exhibition hall/ Exhibition Centre																	

2.22	Banquet hall/ Barat Ghar	a				a			a	a								
2.23	Electric Charing Station	a																
2.24	Petrol pump/Diesel station	a							a	a								
2.25	Oil depot and LPG refilling plant																	
2.26	Gas Godown																	
2.27	Warehouses for non- hazardous items																	
2.28	Warehouses for hazardous items																	
2.29	Automobiles showroom																	
2.30	Weigh bridge/ Dharmakata																	
2.31	Storage Godown for Inflammable items																	
2.32	Agriculture Produce/ Grain Market																	
2.33	Junkyard/ Kabadkhan																	
2.34	Steel/ Cementi Building																	
3	Industrial																	

3.1	Service industries																
3.2	Cottage industries																
3.3	Flatted factories																
3.4	Information/ software																
3.5	Small/light industry																
3.6	Industrial plot (specific industry type)																
3.7	Industrial plot (Integrated)																
3.8	Medium & large-scale																
3.9	Film centre/Film City/																
3.1	Biotechnology/ Biotec plants																
3.11	Non-Polluting Agro based units																
3.12	Milk Pasturing Plant																
3.13	Milk Collection Centre																
4	Logistic																
4.1	Freight complex/ Logistic park																

5.A.	Public & Semi-Publi																
5.1	Govt./Semi Govt./Public undertaking/ local body office	e				e											
5.2	Office/corporate office	e				e											
5.3	Professional/personal agent office																
5.4	Project development/	e				e											
5.5	Satellite/wireless/Telecommunication Centre	e															
5.6	Guest house/lodging/boarding house	d															
5.7	Hostel	d															
5.8	Reformatory & Orphanage	d															
5.9	Old age home																
5.1	School for mentally/ physically challenged	d															
5.11	Creche & day care centre																
5.12	Primary school	d				d			d								
5.13	Secondary school/ int	d				d											

5.14	Vocational Institute / ITI/ Training Institute	d																
5.15	Degree / PG college/	d																
5.16	University																	
5.17	Post office																	
5.18	Telephone exchange	d				d												
5.19	Police station	d	.		.	d	.	.	.	.	.		.	.	.		.	
5.2	Fire station	d	.		.	d	.	.	.	.	.		.	.	.		.	
5.21	Police post	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.22	Library	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.23	R & D centre	d	.		.	.	.	.	.	.	.		.	.	.		.	
5.24	Health centre/ family welfare centre	d	.		.	d	.	.	.	.	.		.	.	.		.	
5.25	Trauma centre	d	.		.	.	.	.	.	.	.		.	.	.		.	

5.26	Medical college/ hospital	d	.		.	.	.	.	.	.	.		.	.	.	.	.		.
5.27	Clinic		.		.	.	.	.	.	.	.		.	.	.	.	.		.
5.28	Nursing home	d	.		.	d	.	.	.	.	.		.	.	.	.	.		.

5.29	Clinical laboratory / Diagnostic centre	a	.		.	a	.	.	.	.	.		.	.	.			.
5.30	Veterinary hospital/ Diagnostic Centre		.		.	.	.	.	.	.	.		.	.	.			.
5.31	Health club/ Gym	d	.		.	.	.	.	.	.	.		.	.	.			.
5.32	Dance/ Music/Art centre	d	.		.	a	.	.	.	.	.		.	.	.			.
5.33	Yoga/ Meditation centre		d		.		.	.	.	.	.		.	.	.			.
5.34	Religious building/Centre	d	.		.	d	.	.	.	.	.		.	.	.			.
5.35	Community centre / B	d	.		.	d	.	.	.	.	d		.	.	.			.
5.36	Convention centre/ c	d	.		.	d	.	.	.	.	.		.	.	.			.
5.37	Socio-Cultural centre	d	.		.	.	.	.	.	.	.		.	.	.			.
5.38	PCO Public call office		.		.		.	.	.	.	.		.	.	.			.
5.39	Internet/Information centre	a	.		.	a	.	.	.	.	.		.	.	.			.
5.40	Social welfare centre	a	.		.	.	.	.	.	.	.		.	.	.			.
5.41	Crematorium/ Burial ground		.		.	.	.	.	.	d	.		.	.	.			.

5.42	Night shelter (rein basera)	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.43	Disaster manageme nt centre	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.44	Metrologica l station	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.45	Banks	e	.		.	.	.	.	.	.	.		.	.	.		.	
5.46	ATM	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.47	Milk Booth	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.B	Public & Semi-Publi																	
5.48	Sewerage treatment	d	.		d	.	.	.	.	.	d		.	.	d		.	
5.49	Pumping station	d	.		.	.	.	.	.	.	.		.	.	d		.	
5.50	Solid Waste Treatment unit	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.51	Sanitary landfill site	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.5 2	Recycling plant	d	.		.	d	.	.	d	.	.		.	.	.		.	
5.53	Tube well/ Overhead	.	.		.	.	.	.	.	.	.		.	.	.		.	
5.54	Water treatment plan	d	.		d	d	.	.	.	.	d		.	.	d		.	
5.55	Electric sub station	d	.		.	.	.	.	.	.	.		.	.	.		.	
5.56	Public	.	.		.	.	.	.	.	.	.		.	.	.		.	

	toilets																	
5.57	Transmission tower/	d	.		.	.								.				.
5.58	Drinking water booth	.	.		.	.												
5.59	Water Works	d	.		d	d			d	d			.					.
5.6	Electric Post	.	.		.	.												
6	Recreational Green																	
6.1	Park/Play ground	.	.		.	.												
6.2	Multipurpose open spaces	.	.		.	.							.					.
6.3	Golf course/ Race course	.	.		.	.			.	.			.					
6.4	Stadium/ Sports training centre	d	.		.	d							.					
6.5	Picinic spot	.	.		.	.							.					.
6.6	Indoor stadium/ games hall	d	.		.	.							.					
6.7	Planetariu m	d	.		.	.							.					
6.8	Aquarium	d	.		.	.							.					
6.9	Amusemen t/ theme p	d	.		.	.							.					
6.10	Recreation al club/	d	.		.	d							.					

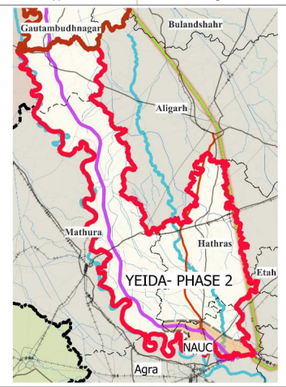
	Swimming pool																	
6.11	Museum cum Auditorium/ conference	d	.		.	d	.	.	.	.	.		.	.	.		.	
6.12	Open air theatre	d	.		.	d	.	.	.	.	.		.	.	.		.	
6.13	National Memorials	.	.		.	.	.	.	.	.	.		.	.	.		.	
6.14	Biodiversity Park	.	.		.	.	.	.	.	.	.		.	.	.		.	
6.15	Shooting Range	.	.		.	.	.	.	.	.	.		.	.	.		.	
6.16	Zoo, Wildlife/ Bird Sa	.	.		.	.	.	.	.	.	.		.	.	.		.	
6.17	Tourist Facility centre	.	.		.	.	.	.	.	.	.		.	.	.		.	
6.18	Sports City	a	.		.	.	.	.	.	.	.		.	.	.		.	
7	Transportation																	
7.1	Open Parking	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.2	Covered/ multi-level	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.3	Taxi/Auto stand	a	.		.	.	.	.	.	.	.		.	.	d		.	
7.4	Truck terminal/ transport Nagar	.	.		.	d	.	.	.	.	.		.	.	.		.	
7.5	Bus depot/ Bus	.	.		.	d	.	.	.	.	.		.	.	.		.	

	terminal																	
7.6	Bus stand/ Shelter	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.7	Motor Garage/Service Garage/ Workshop	.	.		.	d	d	.	.	.	.		.	.	.		.	
7.8	Traffic Park/ children park/ training centre	d	.		.	d	.	.	.	.	.		.	.	.		.	
7.9	Loading/ Unloading facilities	.	.		d	.	.	.	.	.	.		.	.	.		.	
7.10	Transport/ Cargo booking centre	a	.		.	.	.	.	.	.	.		.	.	.		.	
7.11	Container depot	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.12	Toll plaza	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.13	Heli pad	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.14	Railway Godown/ Railway yard/ Siding terminal	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.15	Airport Strip	.	.		.	.	.	.	.	.	.		.	.	.		.	
7.16	Roads	.	.		.	.	.	.	.	.	.		.	.	.		.	
8	Agriculture																	
8.1	Orchard/ Plant nursery	.	.		.	.	.	.	.	.	.		.	.	.		.	
8.2	Farm house	.	.		.	.	.	.	.	.	.		.	.	.		.	

8.3	Dairy/ Poultry Farm	.	.		.	.	.	.	.	.	.		.	.	.		.	
8.4	Agriculture Equipment	.	.		.	.	.	.	.	.	.		.	.	.		.	
8.5	Agriculture/ Horticulture	.	.		.	.	.	.	.	.	.		.	.	.		.	
8.6	Apiary/ Pisci Culture	.	.		.	.	.	.	.	.	.		.	.	.		.	
9	Floating Activities																	
9.1	Residential	.	.		.	.	.	.	.	.	.		.	.	.		.	
9.2	Commercial	a				a	.	.	a	.	.		.	.	.		.	
9.3	Public and Semi Public	.	.		.	.	.	.	.	.	.		.	.	.		.	
9.4	Transportation	.	.		.	.	.	.	.	.	.		.	.	.		.	
9.5	Industry	.	.		.	.	.	.	.	.	.		.	.	.		.	
9.6	Recreational	.	.		.	.	.	.	.	.	.		.	.	.		.	
9.7	Abadi Extension, Resettlement/ rehabilitation	d	d		d	d	d	d	d	d	d		d	d	d		.	

ANNEXURE 2
BASE MAP

ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
2	Arela	17	Khandauli	32	Nayabans
3	Baghena	18	Kheriya Khandauli	33	Nekpur
4	Baharampur	19	Kuberpur	34	Pant Khera
5	Biharipur	20	Madanpur	35	Parbatpur
6	Chaugan	21	Madaur	36	Poiya
7	Dharera	22	Malupur	37	Ramnagar Khandauli
8	Dhorau	23	Midhawali	38	Sarai Day Ruppa
9	Gajauli	24	Mundi Jahangirpur	39	Saurai
10	Garhi Bachchi	25	Nadau	40	Semra
11	Garhi Pirthi	26	Nagla Gukhrauli	41	Talab Buriya
12	Gurha	27	Nagla Mani	42	Ujrai
13	Hasanpur	28	Nagla Nishankh	43	Uncha
14	Hazipur Khera	29	Nagla Tulsi	44	Nera Bangar
15	Kanjauli	30	Nanau		



KEY PLAN

LEGEND:

- District Boundary
- Tehsil Boundary
- Project Boundary
- Village Boundary
- Plot Boundary
- Railway
- Proposed NH to Aligarh
- EDFC
- IMC
- Taj Mahal
- Land For Development (LFD)
- Yamuna River
- Road Connecting NH19 & YE
- Nallah
- Karwan River
- Canal
- Ponds
- Built Up
- Expressway
- National highway
- State Highway
- Other District Road
- Existing Forest Boundary (Based on Satellite Imagery)
- Forest Boundary (Based on Sajra Map)
- Agra Municipal Corporation
- HT Poles
- HT Lines (in KV): 132, 220, 400, 765, ESS
- Contour (in meters)
- Metro Stations: Operational Metro Station
- Historical Monuments
- Metro Line

NOTES

1. GRAPHICAL SCALE TO BE FOLLOWED.

BASED ON DRAWING / DOCUMENTS

DRG./DOCUMENT NO.	SUBJECT
-	-

REFERENCE DRAWINGS

DRG. NO.	SUBJECT
-	-

SCALE 1 0 1 2 3 4 km

DRAFT MASTER PLAN

REV. No.	DATE	STAGE	DESCRIPTION	CIVIL	HM	E&M
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

CHECKED

CLIENT

YAMUNA EXPRESSWAY INDUSTRIAL DEVELOPMENT AUTHORITY (YEIDA)

TRACTEBEL ENGINEERING PVT. LTD. – SKY GROUP

PROJECT

PREPARATION OF MASTER PLAN 2041
FOR NEW AGRA URBAN CENTRE, YEIDA (PHASE 2)

	NAME	SIGN
DRAWN BY	AML	
CHECKED BY	SML	
APPROVED BY	MEE	

DRAWING TITLE: Base Map of Project Area

DATE:-	31.07.2025	DRG NO.	REV.	SHEET
SHEET SIZE	A1 SCALE -	W.003349-Z-10301-010	C	1 OF 1

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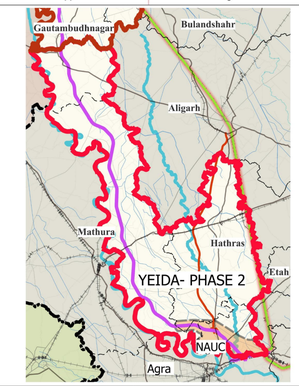
ANNEXURE 3
PROPOSED LAND USE PLAN

ID	Name	ID	Name	ID	Name
1	Agwarkhas	16	Khairaini	31	Nawalpur
2	Arela	17	Khandauli	32	Nayabans
3	Baghena	18	Kheriya Khandauli	33	Nekpur
4	Baharampur	19	Kuberpur	34	Pant Khera
5	Biharipur	20	Madanpur	35	Parbatpur
6	Chaugan	21	Madaur	36	Poiya
7	Dharera	22	Malupur	37	Ramnagar Khandauli
8	Dhorau	23	Midhawali	38	Sarai Day Ruppa
9	Gajauli	24	Mundi Jahangirpur	39	Saurai
10	Garhi Bachchi	25	Nadau	40	Semra
11	Garhi Pirthi	26	Nagla Gukhrauli	41	Talab Buriya
12	Gurha	27	Nagla Mani	42	Ujrai
13	Hasanpur	28	Nagla Nishankh	43	Uncha
14	Hazipur Khera	29	Nagla Tulsi	44	Nera Bangar
15	Kanjauli	30	Nanau		



KEY PLAN

LEGEND:

- District Boundary
- Tehsil Boundary
- Project Boundary
- Village Boundary
- Railway
- Proposed NH to Aligarh
- EDFC
- IMC
- Taj Mahal
- Land For Development (LFD)
- Yamuna River
- Road Connecting NH19 & YE
- River Front Development
- Agricultural land

Metro Stations

- Operational Metro Station
- Proposed Metro Station
- Expressway
- National highway
- State Highway
- Other District Road
- Historical Monuments
- Metro Line
- Agra Municipal Corporation
- Proposed Underpass
- Existing Underpass

Class

- Commercial
- Green, Forest
- Green, Green Belt
- Green, Organized Green
- Green, Recreational Green
- Industrial, Multiple Use Industry
- Logistic, Mmlh
- Mixed Use
- PSP, Institution
- PSP, Utility
- Residential, Abadi Extension
- Residential, Existing Abadi
- Residential, Proposed Residential
- Tourism
- Transportation, Existing Road
- Transportation, MMTH
- Transportation, Road 100M
- Transportation, Road 18M
- Transportation, Road 45M
- Transportation, Road 60M
- Transportation, Road 80M
- Transportation, RRTS Corridor
- Waterbody

NOTES

1. GRAPHICAL SCALE TO BE FOLLOWED.

BASED ON DRAWING / DOCUMENTS

DRG./DOCUMENT NO.	SUBJECT
-	-

REFERENCE DRAWINGS

DRG. NO.	SUBJECT
-	-

SCALE 1 0 1 2 3 4 km

DRAFT MASTER PLAN

REV. No.	DATE	STAGE	DESCRIPTION	CIVIL	HM	E&M
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

CHECKED

CLIENT

YAMUNA EXPRESSWAY INDUSTRIAL DEVELOPMENT AUTHORITY (YEIDA)

TRACTEBEL ENGINEERING PVT. LTD. - SKY GROUP

PROJECT

PREPARATION OF MASTER PLAN 2041
FOR NEW AGRA URBAN CENTRE, YEIDA (PHASE 2)

	NAME	SIGN
DRAWN BY	AML	
CHECKED BY	SML	
APPROVED BY	MEE	

DRAWING TITLE: Draft Master Plan

DATE:-	04.08.2025	DRG NO.	REV.	SHEET
SHEET SIZE	A1 SCALE -	W.003349-Z-10301-016	C	1 OF 1

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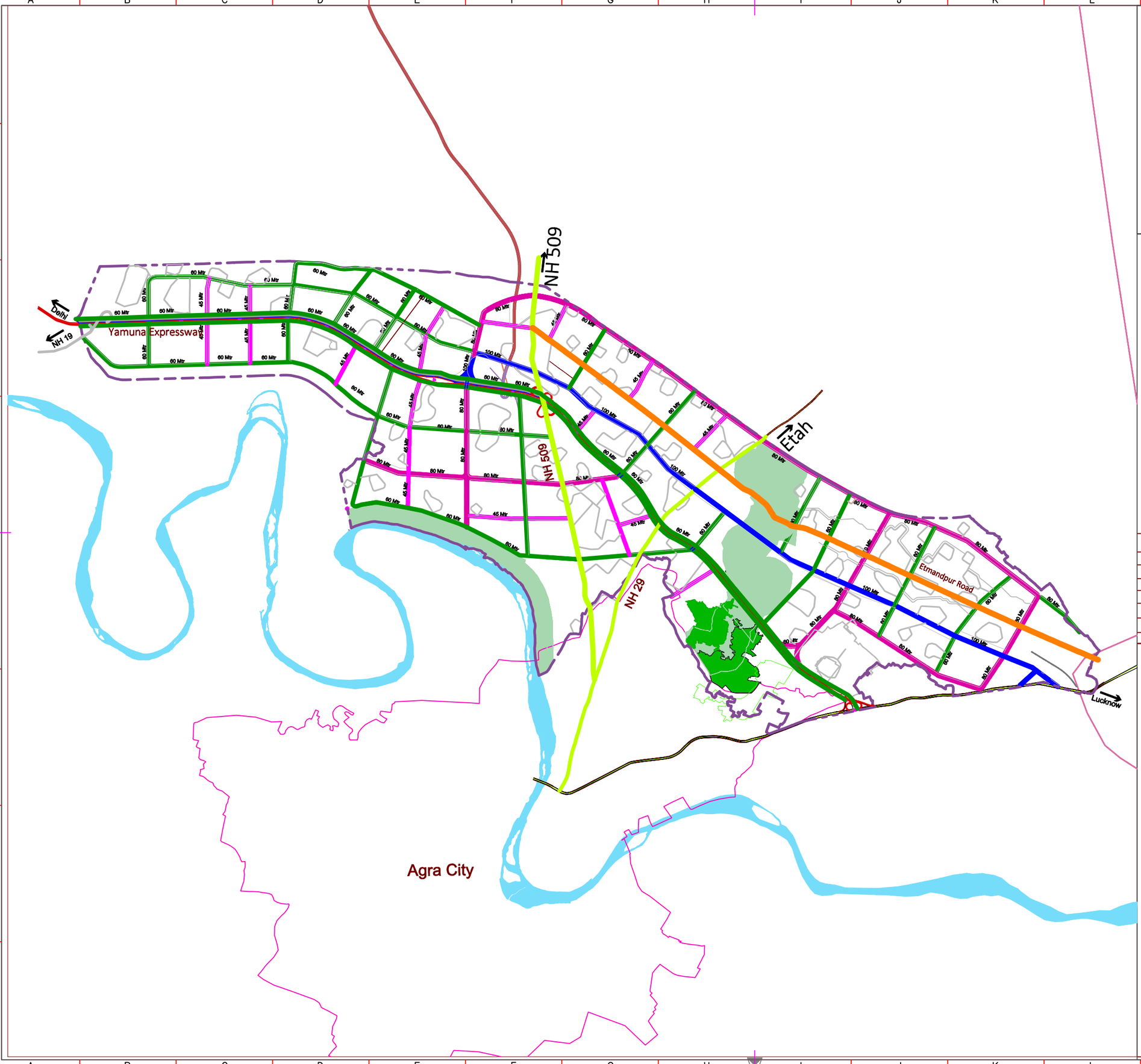
ANNEXURE 4

PROPOSED TRANSPORTATION MAP



N
W E
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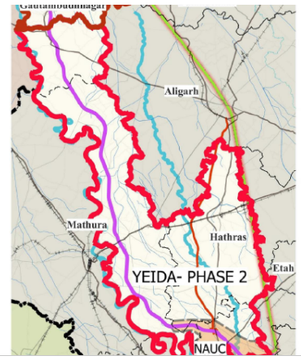
KEY PLAN



Legend

- Project Boundary
- Agra City
- Yamuna Expressway
- Existing NH
- Khandauli - Etmadpur Road
- RRTS
- Proposed Underpass
- Existing Underpass
- 100 mt road
- 80 mt road
- 60 mt road
- 45 mt road
- 18 mt road
- River
- Forest

NOTES Graphical scale to be followed

BASED ON DRAWING / DOCUMENTS

DRG./DOCUMENT NO.	SUBJECT
–	–

REFERENCE DRAWINGS

DRG. NO.	SUBJECT
–	–

1 0 1 2 3 4 km

DRAFT MASTER PLAN

REV. No.	DATE	STAGE	DESCRIPTION	CIVIL	HM	E&M
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–

CHECKED

CLIENT

YAMUNA EXPRESSWAY INDUSTRIAL DEVELOPMENT AUTHORITY (YEIDA)

TRACTEBEL ENGINEERING PVT. LTD. – SKY GROUP

PROJECT

PREPARATION OF MASTER PLAN 2041
FOR NEW AGRA URBAN CENTRE, YEIDA (PHASE 2)

	NAME	SIGN
DRAWN BY	MJL	
CHECKED BY	SML	
APPROVED BY	MEE	

DRAWING TITLE

Proposed Road Network For Agra Urban Centre

DATE: –	30.08.2025	DRG NO.	REV.	SHEET
SHEET SIZE	A3 SCALE		A	1 OF 1

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